THE IRON AGE

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What a Search for a Job Proves To-day

Seeking Work in Thirty Places Shows How It Now Lies with the Employed to Prevent the Spread of Bolshevism

BY DALE WOLF

THAT the American employer of labor is doing his utmost to arrest the spread of industrial unrest and Bolshevism was clearly demonstrated to me after I had visited over thirty places in search of work.

Traveling under an assumed name, talking with hundreds of men who were out of work, personally making an earnest effort to seek employment for myself and receiving splendid treatment from almost all of the employment offices I visited caused me to feel that the American worker was personally to blame for much of the industrial unrest of to-day.

The new function in management—the employment department—is to-day operating with a view of giving every reasonable consideration to the applicant for work. I went to the great Submarine Boat Corporation and there lined up with hundreds of others who were seeking employment. One of the first things that greeted the eye on entering the employment department was a sign which read "Courtesy Always." Here thousands of men were being handled every day, and the motto before the eyes of all of the members of that large staff of the employment department was that every applicant should be treated unmistakably like a man.

At this same employment department I was not given the third degree, as has been indicated by some of the rash critics of the employing classes. The questions asked me were few and very simple. In fact, I was amazed that the interviewer accepted my word without cross questioning or deep interrogation and willingly gave me the opportunity to learn a trade where I could earn from $6 to $8 a day after about two weeks' training. And when he offered to pay me 55 cents an hour while teaching me the trade, I could hardly believe that this was the much maligned representative of capital, who was being so free with his money.

When I talked with the other men in the long list of applicants as to why they were out of work, the usual answer was that they had "kicked up a good job" because they had gotten tired of it. No complaint against the boss; no criticism of the management under whom they labored. No knock about the wages; for some of them boasted about the big money they had made on the last job. And if you had asked them why they had grown tired of the old job, they would not have had a plausible answer to give.

Every effort is being made on the part of the American employer to-day to give a hearing to every man who applies at his plant for work. This hearing is granted regardless of the color, nationality or social standing of the applicant. The individual is allowed to tell his story and the question of his employment is decided entirely upon the merit of the worker-to-be.

It is not always easy to give every worker a hearing. At the time I applied for work at a large roller bearing factor just outside of Newark, there was a great string of applicants and a special guard was necessary to keep them all in line. On this day employing was not being done at all. Yet, rather than have the guard come out and tell the men in one voice that there was "nothing doing to-day," one man from the employment office staff was privately speaking to each applicant and telling him in a most courteous manner that the company could not give him work then, but inviting him to come around some other day. When it came my own turn, I pressed the situation, telling the man of my abilities (?) and assuring him of my willingness to start at the bottom and work my way up in almost any kind of a position, just as long as it was a job. Even when I became insistent, he still treated me with the utmost consideration.

Employers are always looking for *good* men and are willing to take them in temporary positions rather than let them walk the streets. And on the other hand, a good man can get a job, if he will persist in his efforts.

While in New York City I answered an advertisement for machine operators. It proved to be a Western automobile factory representative with

The Labor Situation

of to-day is viewed from a dual angle in the accompanying article:

1. As an Employment Manager.
2. As a Man Looking for Work.

The author, who is employment manager for the Miller Lock Co., Philadelphia, traveled under an assumed name, made the effort to secure employment and talked with hundreds of the unemployed.

He emphasizes the uniform concern and courtesy shown by employing officials and regards it as essential that the right perspective must be given to the restless job holders and job seekers by those workers who know by experience of the present-day generally fair conditions of employment.

his headquarters in the salesrooms of the New York branch. I was asked to tell my experience in operating various kinds of metal working machines. Upon the evidence that I could do the class of work desired, the interviewer stated his willingness to pay my expenses, traveling in a Pullman car, to the city where I was to go to work at 65 cents an hour; and receive more money should I prove worthy. In this particular case I knew the firm and the city well and was able to appreciate the fact that the offer was an extremely liberal one, the city and working conditions being the best.

At a big shoe plant at Roxbury, Mass., the employment manager invited me in to talk with one of the superintendents. I gathered from the conversation that this superintendent was after a desirable clerk but had already hired one. After an interesting interview, the superintendent remarked that he could use the other fellow as well as myself if we should prove to be good men.

At one of the largest banks in New York City, where I sought a position as junior accountant, I was offered a chance to make good. All that was necessary was for me to demonstrate that I was a good man. It was upon my own word that this bank was willing to assume that I was a capable man, and the personnel officer of the bank assured me that their institution was always looking for worthy men. (However, I do not think that I could have made good in this position, had I been willing even to try it.)

Unrest Not Due to Employer

At one of the New York City employment offices I had a talk with a Russian, 50 years old. He told me that he was a machinist and was out of work because of the fact that his shop was on a strike.

"What did you strike for?" I asked.

"For 90 cents an hour," was his reply.

"How much were you getting?"

"Seventy-five cents an hour."

"How long have you been out of work due to this strike?"

"Eight or nine weeks. And let me tell you we are going hungry at our house."

"Don't you think you made a mistake to go out on the strike?"

"No. The union called it, and I went out."

"But if you had your way about it, you wouldn't go out on a strike, would you?"

"Sure I would."

"Do you mean to tell me that if you knew that your family would go hungry by your going out on a strike that you would strike anyway, and let your family starve?"

"Sure I would."

"And you making 75 cents an hour!"

"Well, 75 cents is pretty good money, but I strike just the same. It's by striking that we get more money."

"Do you expect to get your old job back?"

"No. Maybe not."

"Then you will lose the strike and in the meantime your family will be starving."

"Yes, but I get benefits. Eight dollars a week strike benefits. Of course that don't keep me. But my boys work a little."

I tried to convince this fellow that he was making a mistake in striking when he was getting good wages, but he could not see my way of thinking. Then I turned the conversation to the type of work that he had been accustomed to doing, only to find that instead of rating as a first-class machinist (as he had indicated to me) he was simply a machine hand, and only an ordinary one at that.

At one of the New York City food factories I talked to a man who had been out of the army for a short time. His story developed the fact that he had been placed in a good position on leaving the army, but his present-day idleness was due to his own neglect. He admitted that his employer had given him an excellent chance to make good.

While waiting in the line of an employment office of a large Boston department store, the fellow next to me said that he had just come from a summer resort, where he had had a good job. I asked him why he had "kicked it up," and he informed me that he came back to Boston because he could not get enough assistance on his summer resort job. "There's lots of jobs to be had in the country if a fellow wants one. So, why should I worry?" was his closing remark.

Need to Direct Thought of Unemployed

As I talked with these men who were out of work and then recalled some of the conversations of the hundreds of men I have had come to me for positions during the last year, I came to the conclusion that there should be some kind of propaganda started among the unemployed that would convince them of their foolishness in being eager to stay among the ranks of the unemployed. This may sound like loose talk, but if you don't think that a lot of men are running away from jobs today, just go out and listen to them tell about the jobs that have been offered them in the last week.

At one place I recall that a wise manager had placed under a glass-covered desk a promotion chart. This chart showed me that if I took a position down the ladder, I could work up to a better job, and then a better one, and on and on clear up to the manager's desk. I tell you I felt right away that here was a firm worth working for. But this was only a grain in a whole wheat field of possibilities.

Then there was a store in Newark that conducted a little propaganda of its own among the people who desired positions. Interesting things and pertinent facts about the organization of that store could be read and seen by those who were out of work and waiting to be interviewed. Here was another move in the right direction to prevent unrest among the unemployed.

If some anti-Lenine or anti-Trotsky could come to the front and launch a system of publicity that would stabilize labor, the world and our own America would be much safer for commerce and economic advancement.

Discharging Men

Some of the men I talked with had been discharged from the last job and others could tell tales of how their foremen wanted to discharge them, but the employment manager prevented. These men were all-wise about the work of the employment department. They told me how it was "impossible for a foreman to fire you simply because he had a grudge against you." There was always a right of appeal to the employment manager.

One fellow praised an employment manager who had saved him from discharge. He told his story, which was that he had made a mistake and the foreman wished to discharge him. The employment manager had him transferred to another department, where he liked his work better and later earned a promotion.

Employer on the Square

The employer of to-day is willing to lay all of his cards on the table and give every applicant for

work a chance to put him under a thorough cross-examination.

One of the New York City employers told me all about his factory. He covered the subject in detail, mentioned the kind of buildings, the type of employees, what I would be expected to do, the hours I would work, the convenience of transportation, the important subject of pay, and then said (after he had been doing all of the talking), "Is there any other question you would like to ask me?" After that I simply told him that I would take the job if my wife were willing to have me make the change.

This employer dwelt at some length upon the opportunities for advancement and promotion. He frankly said that after a worker had reached a certain stage, the opportunities for promotion came much slower, and only those men were promoted who applied their brains to some outside study. What fairer proposition could a man ask for!

At Hartford the man who hired me to run a milling machine asked me to read over a notice hung on a nearby post. On reading this, I learned that it was a résumé of the working conditions of the factory, and what I could expect in the way of fair treatment from my employers. No guesswork about it; it was all down there in black and white.

At another Boston shoe factory I was asked to read about the shop committee system in that plant and was made to understand distinctly that if I had any fault to find with the management, this shop committee would be more than pleased to take up my complaint with the management for me. In this instance the management seemed exceptionally proud of itself and its accomplishments in the way of taking care of the workers' troubles.

Extra Efforts Put Forth to Employ

At one of the big steel plants near New York, the man who did the hiring was impressed with me and my story. He wanted to give me a job, but did not have any requisitions to hire men of my advertised ability. In spite of the fact that he was turning men away constantly he told me to wait awhile and he would telephone to a foreman and see if he could not get a requisition to hire a man like me. Here was I, a total stranger to him, yet because of the fact that he wanted to be of service to his company and me, he was willing to consult with others before finally turning me down to walk the streets.

When a man shows a keen desire really to get a job, he usually can find some employer who will go out of his way to place him. In one of the large city department stores I persuaded the interviewer that I was a crackerjack man on running a stock room correctly. He telephoned all over that store to see if he couldn't get me a job working in one of their numerous stock rooms. When he had failed he said, "You come back and see me to-morrow morning about nine o'clock, and I will surely be able to find a good job for you by that time. I'll make a temporary job for you, if I can't get some one to take care of you, and then later I'll be able to put you in a permanent position."

The employers are not always insisting that they shall have trained men for their work. They go out of their way to tell the fact that they are willing to take "greenies" and train them, with pay while undergoing the training. This thing was almost unheard of ten years ago.

At a New York street railroad employment office, where I secured a position as a motorman, there was a large training room where every facility was offered to teach new men the art of trolley car work. After this inside training I was to be placed out on a run where I would be further taught under the jurisdiction of an expert trainer.

At one of the large Boston stores I was asked if I would care to take a position selling gasoline and oil stoves at $20 a week to start. I informed the man "I cannot take this position, although I would like to have it, because I know nothing about oil or gasoline stoves."

"Oh, that's all right," he said. "Just so long as you have some ability as a salesman, you will get along all right. You see we will take you and pay you full salary while we are training you. After we get through with the training, then you will know enough to be able to sell the stoves."

Here was another instance of the employer's putting himself out of the way to help develop a man. Other cases could be mentioned, all of which would show the tendency of the modern employer to give a lift to the unemployed.

One of the striking things about my search for a job was the willingness with which an employer would tell me where else I could get a job. If he knew of some activity at another place nearby, he was always ready to pass the good word along. If his own plant was going to take on help in a short time, he would encourage an applicant by mentioning the fact and asking him to call again.

The non-workers must change their attitude of mind if we are to have industrial peace. The employer has come more than halfway. The workers are being given a share in the profits and a voice in the management by our modern profit-sharing plans and organizations of shop committees. However, the non-worker has not had the belief that he is a real God-given man with all of the endowments and opportunities that men have in America.

Such a propaganda must come from among the workers themselves. The employers of labor are bending every effort to meet the unemployed on a man-to-man basis. It's up to some person, persons, organization or agency to convince the unemployed that there is fair treatment and fair work at a fair wage for them, or the red flag of Bolshevism will be waving from their hands in a few months.

Combination of Foundry Machinery Makers

The Rich Foundry Equipment Co., and the Sand Mixing Machine Co., both of Chicago have combined under the trade name of the latter, the American Foundry Equipment Co. The Rich company manufactures sand blast equipment, charging trucks for malleable iron foundries, hammer core machines and the duplex shaker. The Sand Mixing Machine Co., is a manufacturer of the automatic sand cutting machine and sand blast equipment. The new board of directors is as follows: V. E. Minich, president; E. A. Rich, jr., vice president; R. H. Kelly, secretary; O. A. Pfaff, treasurer; and on the board of directors, Harry T. Hall, first vice president, Merchants' National Bank, New York; E. L. Smith, head of accounting department American Foundry Equipment Co. The company is now negotiating for a site on which to erect a plant of from 30,000 to 40,000 sq. ft. floor space, the companies combined now occupying leased plants in each case.

New England Foundrymen Have Outing

The New England Foundrymen's Association held its annual summer outing Aug. 13 at the Pomham Club, Providence, R. I., as the guests of the Providence foundrymen. Officers of the local entertainment committee were Clarence Colvin, Colvin Foundry Co., chairman, and C. E. Andrews, of Whitehead Brothers Co., secretary.

FRANCO-GERMAN RELATIONS

What the Realignment of Coal and Iron Ore Reserves Show

As indicating what mutual compromises and reciprocal concessions may be imposed on both Germany and France by the new conditions which they face, Joseph F. Shadgen, consulting engineer, New York, who a few years ago was identified in an engineering capacity with one of the Thyssen steel-making plants, has compiled the figures of the accompanying table. They show, as is generally known that France needs German coal and Germany needs ore. It will accordingly be interesting to watch the developments of relations between the countries.

Production in Tons of 1000 kg. (2204 lb.) in 1913

	Coal	Coke	Iron Ore	Pig Iron	Steel Ingots
1. German Zoll Verein	278,630,000	32,170,000	35,940,000	19,300,000	19,000,000
2. Saar region	13,000,000	1,500,000*	.....	1,350,000	2,080,000
3. Lorraine district	3,800,000	500,000*	21,140,000	3,900,000	2,285,000
4. Luxemburg	.....	.....	7,450,000	2,400,000	1,340,000
5. France	41,000,000	3,060,000	20,400,000	5,200,000	5,330,000
6. Belgium	22,860,000	3,450,000	120,000	2,480,000	2,350,000
7. France and Lorraine	44,800,000	3,560,000	41,540,000	9,100,000	7,615,000
8. France, Lorraine and Saar	57,800,000	5,060,000	41,540,000	10,450,000	9,695,000
9. France, Lorraine, Saar and Luxemburg	57,800,000	5,060,000	48,990,000	12,850,000	11,035,000
10. France, Lorraine, Saar, Luxemburg and Belgium	80,660,000	8,510,000	49,110,000	15,330,000	13,385,000
11. Germany minus Luxemburg	278,630,000	32,170,000	28,400,000	16,900,000	17,660,000
12. Germany minus Luxemburg and Saar	265,630,000	30,670,000	28,490,000	15,550,000	15,580,000
13. Germany minus Luxemburg, Saar and Lorraine	261,830,000	30,170,000	7,350,000	11,650,000	13,295,000

*Estimate.

The tabulation gives a cue, says Mr. Shadgen, to the condition of the iron and steel trade after the war. The first six lines are the basis of combinations in the remaining lines. For example line 10 presupposes political economic understandings between three neighboring countries. Definite conclusions are only correct in considering that both the Belgian and French plants have suffered so much from war and wanton devastation that the production of coal and coke as well as pig iron and steel cannot be attained before 1921 at the expense of an enormous reconstruction investment. The destroyed or crippled blast furnaces have at least a yearly productivity of three to four million tons of pig iron which can only be regained piecemeal as the rebuilding progresses.

Two facts are clearly shown by comparing lines 10 and 13. Germany has the coal mines and the coke plants. The loss of the Saar district hardly effects her monopoly of coal, especially because that district does not yield coke good for metallurgical purposes. The acquisition of the Saar region hardly solves the acute shortage of fuel in France as the tonnage gained does not even counterbalance the loss of production in the war-ridden district around Lens and Courrière. On the other side, France will in the future control absolutely the minette iron mines and reserves and Germany will have to import practically all of its ore supply.

British Making Commercial Applications of War Material

WASHINGTON, Aug. 12.—According to a report made by Trade Commissioner H. G. Brock, at London, to the Bureau of Foreign and Domestic Commerce, the munitions inventions department of the British Government has conducted a series of interesting experiments to utilize surplus war material.

"The steel of shell is in many cases capable of being rendered glass hard," says the report of Mr. Brock, "and milling cutters have been produced which are reported to have stood the most exacting tests. After a little manipulation in the lathe, an 18-pounder shell, minus nose and copper band, makes an excellent shafting coupling. The copper bands sell at a good price for electrical and other purposes. A special lathe extension constructed from spare parts enables waste 18-pounder cartridge cases to be cut into strip brass; and containers from shrapnel shells can be used, with a slight alteration as lamps. By making an alteration in the carbureter it is possible to run the airplane engines on coal gas.

Italian Imports under Special License

WASHINGTON, Aug. 12.—The Bureau of Foreign and Domestic Commerce has received a cablegram from Alfred P. Dennis, commercial attaché at Rome, announcing that the articles which hereafter may be imported only under special license from the Italian Government include copper, cement, iron rods or bars, steel rails and railway ties; metal plates and sheets of all kinds; partly manufactured iron and steel goods; copper, brass, bronze, crude or semi-manufactured; firearms; agricultural machinery, tractors; railroad rolling stock; and automobiles.

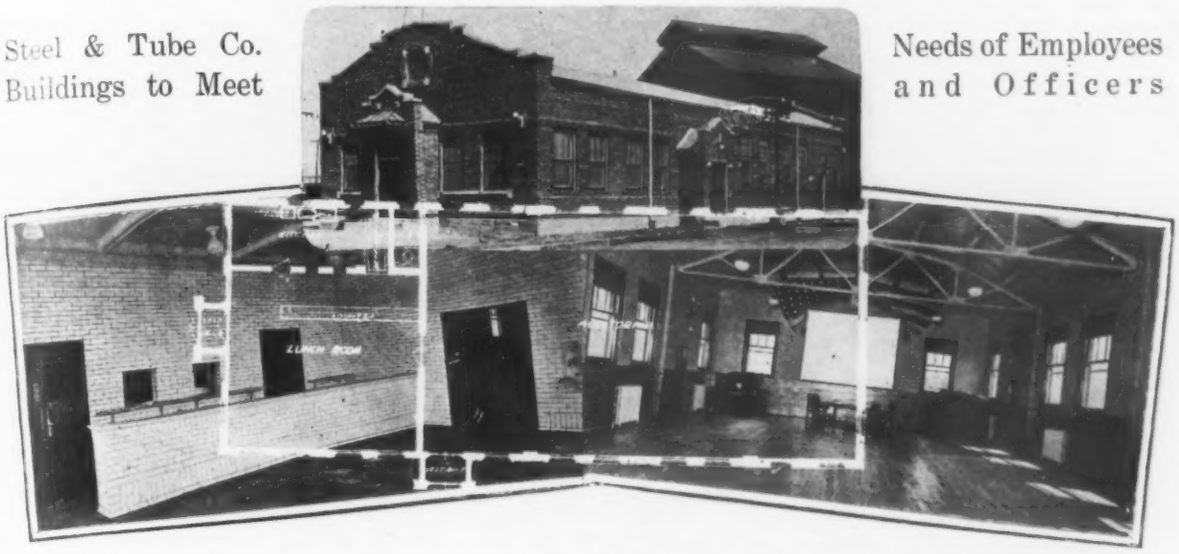
Reduced Ocean Shipping Rates

WASHINGTON, Aug. 12.—The United States Shipping Board, as mentioned in these columns last week, has announced a new series of freight rates from north Atlantic ports to the United Kingdom to meet British competition. The rates showed a reduction for iron and steel from a former range of $16 to $18 per ton to $13 to $15, as well as a cut to $12 per ton as a minimum for ballast freight. The following table itemizes the chief commodities, those marked "special" being subject to special negotiation on the basis of $12 per ton minimum:

Aluminum ingots, per 100 lb	$1.00
Auto chassis and trucks, per cu. ft	.65
Automobiles, pleasure, per cu. ft	.65
Bars, up to 30 ft. in length	Special
Boiler tubes, per gross ton	13.00
Bolts and nuts, per gross ton	14.00
Brass bars and sheets, per 100 lb	1.00
Brass and copper, scrap, per 100 lb	1.00
Carwheels, loose, per gross ton	13.00
Copper ingots, per gross ton	15.00
Copper wire rods and coils, per gross ton	20.00
Forgings	Special
Lead billets, per gross ton	14.00
Nails, per gross ton	13.00
Pig iron	Special
Pig lead	Special
Pipe fittings, iron, per gross ton	13.00
Plates, up to 30 ft. in length	Special
Pipe, 4 in. or under, outside measurement, per gross ton	13.00
Rods, wire	Special
Scrap iron, per gross ton	13.00
Screws, per gross ton	14.00
Sheets up to 30 ft. in length	Special
Skelp	Special
Spelter	Special
Spiegeleisen, per gross ton	13.00
Steel billets	Special
Steel, cold rolled, in boxes	Special
Steel hoops, in coils, per gross ton	14.00
Steel rails, light, not over 30 ft. in length	Special
Structural material up to 30 ft. in length and 2 tons in weight, including angles, beams, channels, girders and T's, not fabricated, per gross ton	13.00
Tin, per gross ton	15.00
Wire, plain, in coils, per gross ton	14.00
Zinc, per gross ton	15.00
Zinc ashes, per gross ton	14.00
Zinc dross, per gross ton	14.00

Aesthetic Treatment of Plant Structures

Steel & Tube Co. Buildings to Meet Needs of Employees and Officers



AMERICAN industry up to date has been severely practical. Manufacturing facilities have been designed with an idea of getting the results at the least cost, and little attention has been paid to architecture or to the provision of adequate facilities for the comfort and convenience of employees. The unattractive, and often ugly, appearance of the agerage plant building is probably attributable to a failure to consider architectural possibilities, rather than to a lack of aesthetic taste. Undoubtedly, the fact that a building of pleasing design can be constructed at little excess in cost over a homely, barn-like structure, has not won general recognition.

Although of late years industries, in increasing number, have taken steps to provide for the physical and social needs of their employees, few have done any more in this regard than the Steel & Tube Co. of America at its Iroquois and Mark plants. However, the striking feature of the facilities provided by this company is the simple, yet attractive, design of the structures erected.

Among several buildings recently completed, the largest and handsomest from an architectural point of view is the men's lunch room and assembly hall at the Iroquois Iron Co. plant, South Chicago, Ill. This structure, an exterior view of which is shown in an illustration, is 96 ft. by 40 ft. The cafeteria, the dimensions of which are 28 ft. by 30 ft., is finished with a red tile floor with black joints and walls of white enamel brick. The serving counter and the tables are topped with vitro marble. The adjoining kitchen is equipped with gas and electric stoves, steam tables, vegetable and dish sinks and a built-in refrigerator.

The auditorium is connected with the cafeteria by means of swinging doors, but in addition has a separate outside entrance. It has a hardwood floor and walls of dark glazed brick for a height of 5 ft. and of buff-face brick above. With dimensions

Lavatory Building at the Iroquois Plant. This structure compares favorably with similar facilities provided at the finest country clubs. The attractive structure (above) contains a cafeteria and an auditorium for moving-picture an auditorium for employees. The interior of cafeteria (left), showing entrances to kitchen and auditorium. The floor is of red tile with black joints, while the serving counter and the walls are of white enamel brick. Interior of the auditorium (right), showing moving-picture screen and piano

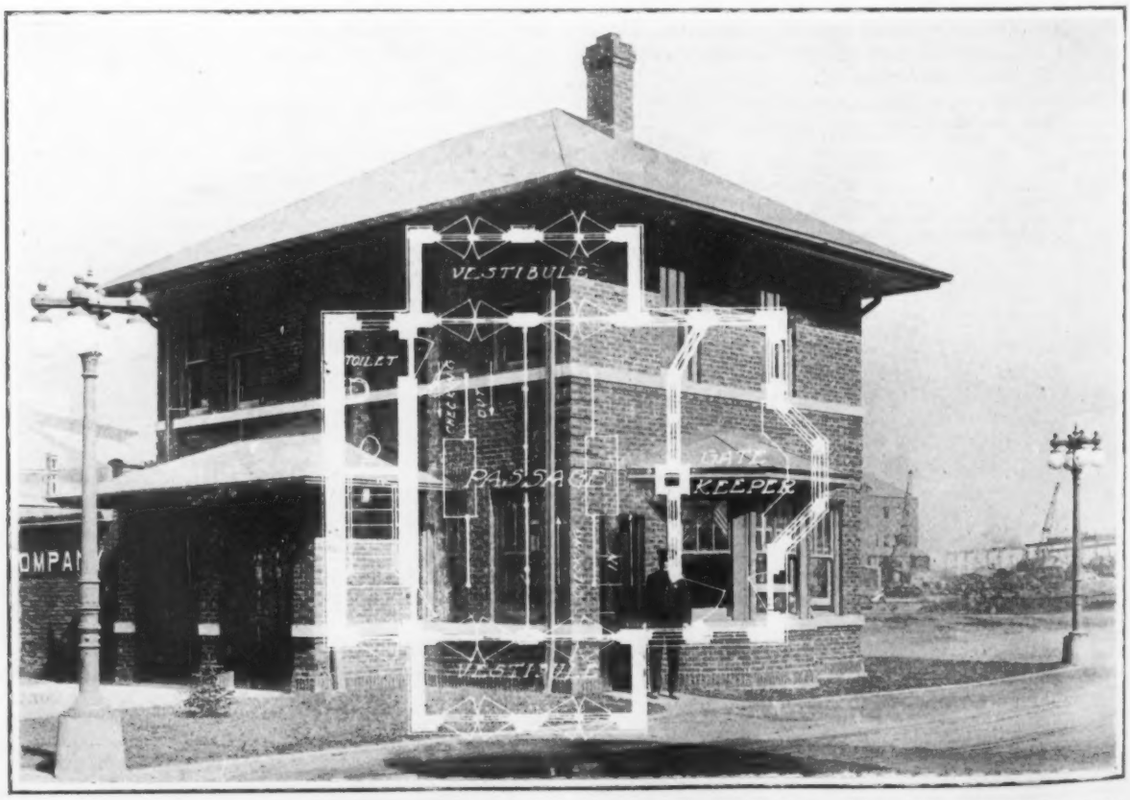
The Office of the Blast-Furnace Superintendent at the Mark Plant Is a Particularly Attractive Structure

of 40 ft. by 64 ft., it will seat about 400 people. It is equipped with a first-class moving picture and stereoptican machine, which is situated in a fireproof chamber located above a toilet room adjacent to the kitchen. Access to the chamber is gained by means of an outside stairway.

The hall has already been the scene of a number of moving picture shows, provided by the company. While these have contained some educational features, they have not been lacking in the best of current scenarios, including light comedies. As the auditorium was intended primarily as a recreation center for the employees and their families, the company has given the men free rein to use it for any social functions they care to arrange. This they have done; one of the first of these social gatherings, an Hungarian dance, was a decided success. To provide music, the company has installed a piano in the hall, as shown in the illustration.

The auditorium is not only a scene of social activities, but is also utilized as a school room. Classes in English and elementary arithmetic have been inaugurated, and though these are intended particularly for the foreign-born worker, a surprisingly large number of native Americans are taking advantage of the instruction. The employees enrolled as pupils are paid their regular wages for the time taken up by the classes.

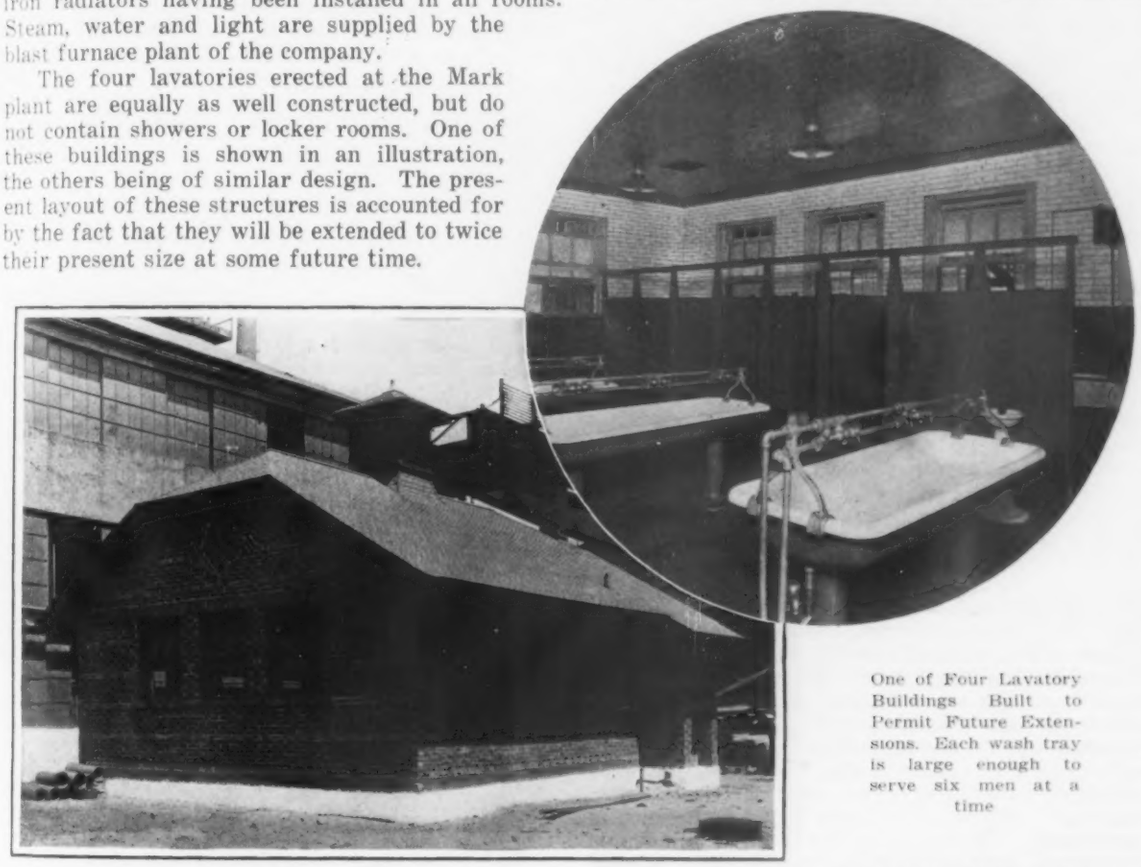
Realizing that high-class sanitary facilities constitute a potent agency for the maintenance of health among employees, and are therefore of even greater importance than recreational centers, the



The Gate House Is a Two-Story Structure with Entrance and Exit Passageways on the First Floor and Offices on the Second

Steel & Tube Co. erected five lavatory buildings, one at the Iroquois plant at South Chicago, and the other four at the Mark Mfg. Co. plant at Indiana Harbor. The Iroquois building, shown in an illustration, contains separate shower, toilet, locker and wash rooms, and compares favorably in its appointments to similar facilities designed for country clubs or high-class educational institutions. The floors are of red cement, the walls of glazed brick to a height of 5 ft. and of white enamel brick above. The ceiling is of matched lumber, white enameled. All equipment is of good substantial quality. The building can easily be kept clean by flushing it out with water. Steam heat has been provided, cast-iron radiators having been installed in all rooms. Steam, water and light are supplied by the blast furnace plant of the company.

The four lavatories erected at the Mark plant are equally as well constructed, but do not contain showers or locker rooms. One of these buildings is shown in an illustration, the others being of similar design. The present layout of these structures is accounted for by the fact that they will be extended to twice their present size at some future time.



One of Four Lavatory Buildings Built to Permit Future Extensions. Each wash tray is large enough to serve six men at a time

Freyn, Brassert & Co., engineers, Chicago, who designed and erected the buildings which have just been described, also constructed a gate house at the Iroquois Iron Co. and offices for the blast furnace superintendents at the Mark and Iroquois plants. These buildings are also noteworthy because they combine the practical features desired and good architecture. The gate house is divided into three compartments, two of which are equipped with time clocks, one for checking in upon coming to work and the other for checking out before leaving the plant. The gatekeeper is stationed in a third compartment separated from the passageways by glass, through which he can keep an eye on the men as they go in and out. The second floor of the gate house is used for office quarters.

The blast furnace superintendent's office at the Mark plant, shown in an illustration, is a one-story brick structure, 21 ft. by 40 ft., and contains a general office, a private office, a toilet, shower and dressing room. The building erected for the blast furnace superintendent at the Iroquois plant is of similar design.

L. H. Meyer has been placed in charge of the new branch of the John W. Cowper Co., Buffalo, engineer and contractor, in the Oliver Building, Pittsburgh.

Philadelphia Foundrymen Organize Committee for the Coming Convention

The Philadelphia foundrymen and foundry supply men have organized thoroughly for the convention of the American Foundrymen's Association to be held in that city Sept. 29 to Oct. 3. Thomas Devlin, president of the Philadelphia Foundrymen's Association, and Howard Evans, its secretary, are members ex-officio of all committees. The clearing house committee consists of the following: Howard M. Bougher, J. W. Paxson Co., chairman; Charles W. Asbury, Enterprise Mfg. Co.; H. J. Bannister, George Oldham & Son; G. H. Clamer, Ajax Metal Co.; Stanley G. Flagg, III, Stanley G. Flagg & Co.; D. P. Hopkins, United States Cast Iron Pipe & Foundry Co.; W. J. Johnson, Baldwin Locomotive Works; George C. Matlack, William Cramp & Sons Ship & Engine Building Co.; Staunton B. Peck, Link-Belt Co.; Charles Suess, Westinghouse Electric & Mfg. Co.; Walter Wood, R. D. Wood & Co.; Thomas Kaveny, Herman Pneumatic Machine Co.; Frank Hodson, Electric Furnace Construction Co., and Silas M. Tomlinson, of the Frank Samuel organization.

There are eight special committees and the chairman of each is made a member of the clearing house committee. These committees and their chairmen are the following: Information, George F. Pettinos; reception and hotels, H. W. Brown, Tabor Mfg. Co.; visitation of plants, George C. Davies, Pilling & Crane; publicity, C. R. Spare, American Manganese Bronze Co.; finance, C. P. Pond, David Lupton's Sons Co.; entertainment, Frank Krug, White & Brother; golf, Otto W. Schaum, Fletcher Works; loan of automobiles, Herbert J. Bougher, J. W. Paxson Co.

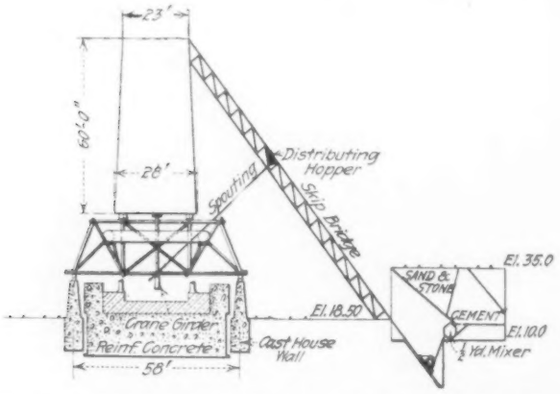
Secretary C. E. Hoyt notes that the exhibit space already taken for the Philadelphia meeting is 60,000 sq. ft., whereas 38,000 sq. ft. was used at Cleveland in 1916, 44,000 sq. ft. at Boston in 1917 and 42,000 sq. ft. at Milwaukee in 1918. The technical sessions at Philadelphia begin Tuesday morning, Sept. 30, and continue on Wednesday, Thursday and Friday mornings. The banquet comes on Thursday evening, Oct. 2.

The Selson Engineering Co., Ltd., New York, has just opened a branch in Brussels, 15 Rue du Lombard.

RENEW FURNACE FOUNDATION

Timber Trusses and Old Crane Girder Used as Underpinning for Stack During Operation

The renewal of the foundation under a blast furnace without disturbing the shell was recently accomplished for the Dominion Iron & Steel Co., at Sydney, N. S., which operates six blast furnaces. These are relined and remodeled in accordance with a schedule providing for the continuous operation of at least three, and generally four, furnaces. During the remodeling of No. 3 furnace, recently described in the *Engineering News-Record*, the foundation was found to be badly split and veined with iron, and in order to provide permanent support it was decided to install an entirely new foundation instead of reinforcing the damaged one, as was first contemplated. A contract for this portion of the work was therefore made with the Foundation



Wooden Trusses with Steel Diagonal Web Members Were Employed to Hold Blast Furnace Stack During Renewal of the Foundation

Co., Ltd., Montreal, and work started early in July, 1918. The procedure adopted is detailed by C. W. Lush, engineer with the Foundation Co., as follows:

At this time the lining, bosh, hearth jacket and piping had been removed, and a choice of several methods of executing the work was afforded. The problem comprised the supporting of the furnace shell, bustle pipe and column heads, together with some loading from the bleeder pipes, reaction from the skip bridge and severe wind pressures from any direction of the compass. The contractor was required to maintain all existing structures at practically their original elevations.

Comparative studies of methods resulted in a decision to use two wooden trusses (with steel end diagonal web members) bearing on the side walls of the cast house and taking the load of the furnace at the mantle, as the main supports, while an old crane girder already on the site was utilized to take the wind load transverse to the trusses and to help support the bustle pipe. A general view of the shoring and of the principal physical features affecting the work is reproduced.

The Fluorspar Industry in 1918

All records for fluorspar mined and marketed in the United States were broken in 1918, according to statistics compiled under the direction of E. F. Burchard of the Geological Survey. During the year 263,817 net tons, valued at $5,465,481, were sold, compared with 218,828 tons, valued at $2,287,722 in 1917. This represents an increase in quantity of 44,989 tons, or nearly 21 per cent, and in value of $3,177,759, or nearly 139 per cent. The imports of fluorspar into the United States in 1918 amounted to 12,572 net tons, valued at $169,364, compared with 13,616 tons, valued at $114,598, in 1917. This represents a decrease in quantity of 1044 tons, or 7.7 per cent, but an increase in value of $54,766, or 47.8 per cent. The value at the foreign ports of shipment assigned to the imports in 1918 averaged $13.47 a ton, compared with $8.42 in 1917, an increase of $5.05 a ton, or nearly 60 per cent. Of the imports in 1918 England furnished 11,659 net tons, valued at $147,391, and Canada furnished 913 net tons, valued at $21,973. A comparison of the average price of the domestic spar produced ($20.72) and of the local price assigned to the spar imported from England ($12.64) and Canada ($24.07) is of interest.

The average selling value per ton f.o.b. mines or shipping points for all grades of spar in 1918 was $20.72, compared with $10.45 in 1917.

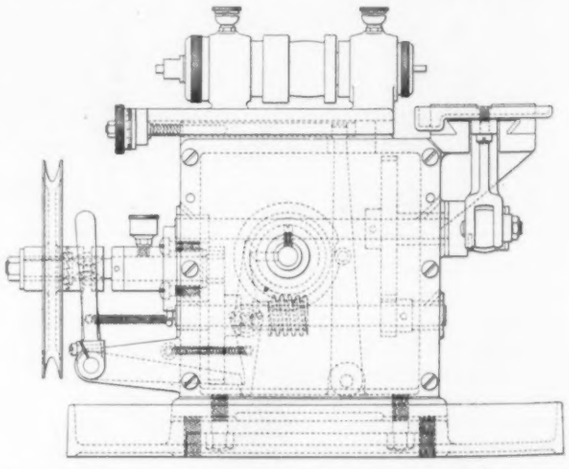
The shipments of gravel spar in 1918 amounted to 213,311 net tons, valued at $4,582,456, compared with 183,144 tons, valued at $1,759,920 in 1917.

The total quantity of crude spar mined in 1918 amounted to 326,039 net tons, compared with 280,825 tons in 1917, an increase of 16.1 per cent. Stocks of spar at mines or shipping points, mainly in Kentucky, amounted at the end of 1918 to 22,779 net tons, compared with 21,655 tons at the end of 1917.

Cam-Operated Routing Machine

A cam-operated routing or profiling machine has been put upon the market by the Automatic Engraving & Mfg. Co., 2033 Fifth Avenue, New York. This type of mechanism replaces the ratchet usually employed to advance the spindle. The cam is designed to eliminate all possible loss in cutting time by utilizing a maximum percentage of the cam surface in productive work.

A circular disk with a knockout pin is also mounted on the camshaft. It is connected by two levers, a latch or catch lever on the frame engaging a holding lever connecting with the starting lever. After one revolution of the machine it is stopped by the knockout pin throwing the levers to disengage the clutch. It is stated by the manufacturer that speed of production and efficiency are derived from the fact that there is very little idle travel on the cam feed and that this type of feed brings the severest cutting during the middle of the stroke, insuring a maximum of life for the milling cutter. The cutter itself is, where permissible, made with a hole in the shaft and oil is forced thereby upon the work.



Power Is Applied to the Worm Drive, Shown in the Center, to Rotate the Cam Above, Thereby Swinging the Slide-Operating Lever Back and Forth to Carry the Cutter Spindle Carriage In and Out of the Work

The starting lever is connected with a shaft and a fork which engages a clutch on the driving wheel. This in turn is connected with a shaft and pinion driving the change gear and wormshaft connected with a pinion and gear by which the proper feed is transmitted to the table slide oscillated by means of an eccentric.

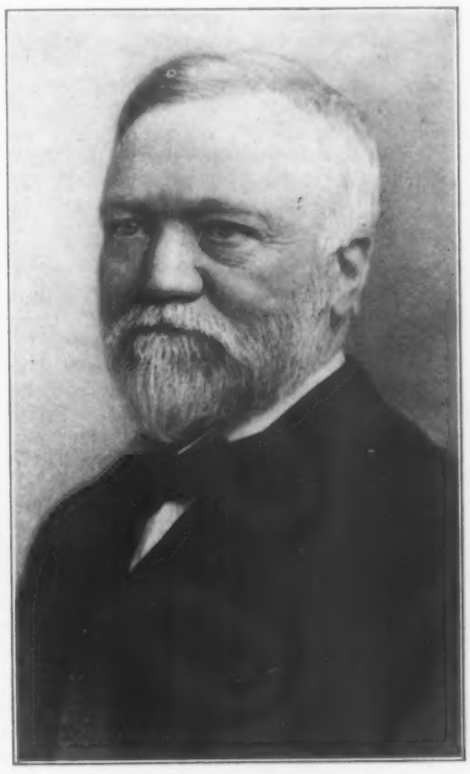
The wormshaft operates the camshaft by means of a worm and a gear. On the worm gear shaft is mounted a cam which forces the slide-operating lever forward, carrying the spindle slide ahead to perform the work. This lever is connected with an adjustable slide regulating the depth of the cut. For quantity production one cam is cut to control the depth of the cut required.

Andrew Carnegie Succeeded by Knowing Men

Long the Foremost Figure in the American Steel Trade, an Advocate of Unrestrained Competition and Maker of New and Greater Records

THAT Andrew Carnegie was feeling the weight of years had long been known and his associates in the steel trade were not unprepared for the announcement that he had passed away Monday morning, Aug. 11, at his country place, Shadow Brook, near Lenox, Mass. He was 83 years old and had outlived his retirement from active participation in the steel business by a little more than 18 years.

Andrew Carnegie was a man of complex character in that he possessed high ideals and extreme practicality. He has been called one of the most discerning judges of men that ever lived. Known as the greatest of iron masters, he might also well have been called a master of men, for in the selection of men to manage his properties he reserved a stipulated right and method of shelving them should they fail to meet his expectations. He made them rich and they made him richer, but he was exacting in his specifications. His scheme of "ejecture," as it has been called, included the surrender by a partner of his holdings in Carnegie companies when the partner's connection was severed. The plan was successful until Mr. Carnegie's rupture with Henry Clay Frick and his effort to oust Mr. Frick, of which more will be said later.



ANDREW CARNEGIE

The Primacy of Steel

Mr. Carnegie's junction with fortune has few parallels in the country's industrial history. He was on the scene, young, strong, unusually shrewd and alert to possibilities, almost at the birth of one of the greatest developments in the history of mankind, the utilization in America of nature's riches in iron and their conversion into steel by the Bessemer process. Circumstances brought him into a field in which few then had vision. It is doubtful whether Mr. Carnegie himself fully realized the transcendent factor that steel was to become in every branch of human industry.

Like all great men, Mr. Carnegie had to meet criticism from those who would detract from his fame and achievements, but no one could deny his ability to grasp opportunity—even to create opportunity—to judge men and get the most out of them. His judgment was at times faulty, but he was saved from mishap by the cleverness of his chosen lieutenants, and swept on to greater success by the irresistible flood of demand for steel, aided by the failure of others, by the country's protective policy, and by railroad rebates which to-day would not be countenanced. He was not always quickly convinced of the merit or earning power—the latter he always had in mind—of a new business venture, but once convinced he invariably found a way to dominate and there were few of the vicissitudes of fortune which marked the careers of others. He went from strength to greater strength. It has been said of him that he saw no profit in pioneering. Yet he would spend great sums for improvements where the prospect appealed to him. Usually he was good at prophecy. He was one of the earliest exemplars of absentee ownership, though always informed by post, telegraph or cable as to the status of his interests. It is not improbable that the perspective obtained from afar often helped him in reaching wise decisions, gave him vision which those grappling with the details of actual management did not have.

Out of Poverty

Andrew Carnegie was born Nov. 25, 1835, in Dunfermline, Scotland, the son of a weaver of damasks. The business of the father was so impaired by the introduction of factory methods that in 1848 he brought to America his wife and two sons, Andrew and Thomas M., the latter the junior of Andrew by nine years. They located in Pittsburgh, the father there obtained employment at his trade. Andrew Carnegie's first step in business was as a bobbin boy at $1.20 a week. At 14 he was employed in a bobbin-turning shop, his weekly wage there being $3. At 15 he became a messenger boy for the Ohio Telegraph Co., and improved himself by learning telegraphy. In 1854 he entered the service of Thomas A. Scott, then superintendent of the Western Division of the Pennsylvania Railroad, a step which meant much to the future of young Carnegie, for in later years Mr. Scott delighted in assisting his young friend in the climb upward. Through his interest, Andrew Carnegie was given many business opportunities, and in 1863, at the age of 28, the young man had accumulated some money and had been promoted to the superintendency of the railroad, the position Mr. Scott had held. Investments in oil and the Woodruff Sleeping Car Co. had proved profitable for Andrew.

The group of young men with whom both Andrew and Thomas Carnegie grew to manhood, almost without exception became prominent in iron and steel; in fact, most of them were associated with Andrew in his rise. Some of these have passed from public memory; a few are still linked in the public mind with steel, coke or ore. Famous as Andrew became, for instance, little is said or thought to-day of Thomas M. Carnegie, for the reason that he died in 1886 at the age of 43 years. He was a lovable character, endowed with Scotch humor, and possessing the persuasive way that contributed in no small measure to Andrew's early success. Much could be said along the same line for some of the others.

First Venture in Iron

Mr. Carnegie's connection with the iron industry began in 1861, when he was called to serve as a mediator in a partnership dispute in the firm of Kloman & Co., who operated an iron rolling mill and forge in Twenty-ninth Street, Pittsburgh, in which Henry Phipps held an interest. The company was first established by Andrew and Anton Kloman in 1858, at Girty's Run, Millvale, Duquesne borough, now a part of Alleghany, its initial valuation being $4,800. Growth had caused the firm to move to Twenty-ninth Street. In the adjudication of the dispute, Thomas M. Carnegie acquired an interest with capital furnished by Andrew. This step is believed to mark the entrance of the Carnegies into the iron business.

That Andrew Carnegie's Scotch sagacity gave him

some realization of the great future for iron was evidenced in 1864 by his taking a substantial interest in the Cyclops Iron Co., planned as a rival of the Kloman mill, and which built a plant at Thirty-third Street, Pittsburgh. Only a year later the two merged as the Union Iron Mills, the capital stock being $500,000. In view of later developments, it is interesting to note that the new company, like many young enterprises, often had difficulty in finding money wherewith to meet current expenses and many a trying situation was solved by the fertile mind of Mr. Phipps. Soon afterward, railroad buying became active and the genius of Mr. Carnegie, as a business expander, made itself felt, one of his important strokes being an arrangement whereby the Union Iron Mills supplied shapes to Piper & Shiffler. This firm was the forerunner of the Keystone Bridge Co., of which it became part in 1865, the new company being formed with Mr. Carnegie and other railroad men on the directorate. Meanwhile Mr. Carnegie was increasing his holdings at every turn.

In 1870 the Carnegie interests refused to join a blast-furnace project, inasmuch as it did not possess the element of independence for them, and in the same year Kloman, Carnegie & Co. was organized, both Andrew and Thomas being interested, for the purpose of building a blast furnace at Fifty-first Street, Pittsburgh. It was the first Lucy Furnace. Its rivalry with the contemporaneous Isabella furnace is a matter of history.

Edgar Thomson Beginnings

About 1873, the firm of Wilson, Walker & Co., with Andrew Carnegie as a silent partner, was formed to purchase the lower Union mill, this mill in 1886 becoming a part of Carnegie, Phipps & Co., Ltd. In 1873 also, Carnegie, McCandless & Co. was organized with a capital stock of $700,000, the company securing an option on land at Braddock's Field, a short distance from Pittsburgh on the Monongahela. Thomas M. Carnegie, rather to the disapproval of his brother, had an interest in this project. It is interesting to observe that it was Andrew's constitutional wariness which caused him to frown on the establishment by his brother, in conjunction with William Coleman, the brother's father-in-law, and others, of the Bessemer plant at Braddock, which became the Edgar Thomson Steel Co. The faith of Mr. Coleman and Thomas was inspired by visits to existing Bessemer steel plants in this country, but Andrew acquired his in the course of a visit abroad. His good friend, Colonel Scott, commissioned him in 1872 to go to Europe and sell railroad bonds, a mission which he executed with success, and a profit to himself of $150,000. What he saw in England convinced him as to the value of Bessemer rails, and on his return he put $250,000 into the company. In 1874 it was reorganized as the Edgar Thomson Steel Co., Ltd., capitalized at $1,000,000.

The first blow in the new plant was made Aug. 22, 1875. Though this works, built by A. L. Holley, was not the first to make Bessemer steel in the United States, it was marvellously successful and a money-maker from its start. It astonished the world both as to methods and production. Andrew Carnegie's genius in management and sales generalship was here in full swing, while the operating end was cared for by capable aides. Holding one-third of the stock of the company, Mr. Carnegie wanted one-half, and this and more he eventually obtained. From this time dates the famous Carnegie policy which provided that no officer of a Carnegie company should retain his interest after he had reisgned his connection, a policy which took the form of a signed pledge, to which, however, there was later some laxity in obtaining signatures. Its purpose was the elimination of those considered undesirable. Not much can be said here about what had been termed "ejectures" from the Carnegie organization, but from time to time men who had been important in the councils dropped out, the strength of Andrew Carnegie steadily growing. The original purpose of the plan was to supply a means of removing debtor partners, or those given a stock interest, for which payment was to be made by the earnings of the stock itself.

In 1879, the Pittsburgh Bessemer Steel Co., Ltd., was organized with a capital stock of $250,000 to build a mill at Homestead, a short distance from Braddock, the founders being firms whose supply of merchant steel, for business reasons, had been cut off from the Edgar Thomson works. Simultaneously, Andrew Kloman, who had been practically removed from the Carnegie organization following unfortunate ore speculations on his own account, began the erection of a mill at Homestead, but he died before it was completed. The Kloman property was bought by the Pittsburgh Bessemer Steel Co. By September, 1881, the Homestead plant, destined to become the greatest in the world, was making 200 tons of Bessemer rails a day, and the Carnegies evinced alarm at the prospective competition. But labor troubles developed at Homestead, prices became less attractive, and the founders of the new enterprise became more alarmed than the Carnegies, with the result that in October, 1883, the Homestead properties were transferred to the Carnegie group, the consideration covering the cost of the plant and the augmented value of the land, the sellers receiving notes chiefly. It is related that the Homestead mill paid for itself within two years. It demonstrated the Carnegie wisdom of buying, building and improving when times were dull, and also illustrated Mr. Carnegie's faith in the future. The Homestead works expanded rapidly, new outlets were found for its product, and finally, through the advice of Mr. Phipps, the open-hearth process was introduced.

Early Consolidation

In 1881, Carnegie Bros. & Co., was organized, its capitalization being $5,000,000. It included the Union Iron Mills, Lucy furnaces, Edgar Thomson Steel Co., and some minor properties, Andrew Carnegie owning half the stock, with Thomas M. Carnegie and Henry Phipps ranking equally with interests of $878,000 each. How quickly events moved is illustrated by the sale, two months later, of the Lucy furnaces to Wilson, Walker & Co., their valuation in two months having advanced from $750,000 to $1,000,000.

In 1882, Henry Clay Frick was admitted to the Carnegie fold, a most important step, as subsequent events proved. Mr. Carnegie and his company bought a large interest in the H. C. Frick Coke Co., Mr. Carnegie increasing his holdings in that company in 1886. In the latter year was organized the Duquesne Steel Co., with a capital stock of $350,000, but before the completion of its works it was reorganized as the Allegheny Bessemer Steel Co., with a capitalization of $700,000. Like some of its predecessors, the new company encountered labor trouble, operations suffered because of defective equipment, and the owners, when called on for additional capital, developed a desire to sell, the result being that in 1890 the company was purchased by Mr. Carnegie and his associates.

In 1886 the organization of Carnegie, Phipps & Co., Ltd., brought together the Lucy furnaces, the Upper and Lower Union mills and the Pittsburgh Bessemer Steel Co., Homestead.

In 1892, the Carnegie Steel Co., Ltd., was formed, consolidating all the Carnegie properties, the capitalization of the new company being $25,000,000. In this move, Mr. Frick played a strong hand. The principal properties merged consisted of the Upper and Lower Union mills, the Lucy furnaces, Edgar Thomson Steel Co., Pittsburgh Bessemer Steel Co., Homestead, Duquesne Steel Co. and Keystone Bridge Co. Following this step, an important evolution was the construction of the Union Railway, connecting all the works of the company, an accomplishment for which Mr. Frick has been given much credit. The year 1892 was in several ways a fateful one for Mr. Carnegie and his associates, for it brought the great Homestead strike, and also saw the beginning of the acquisition of Lake Superior ore properties which later gave the company no small measure of its supremacy.

Acquiring Iron Mines

It is interesting to note that Mr. Carnegie had no faith in the ore business, and both discouraged and opposed the acquisition referred to. The story, which

brings Henry W. Oliver into prominence, affords one of the most interesting chapters in Mr. Carnegie's career, as his judgment was reversed by the active managers of his company. Henry W. Oliver in 1892 formed the Oliver Iron Mining Co. to operate mines on the Mesaba range, and at the suggestion of Mr. Frick an arrangement was made whereby the Carnegie Steel Co. was to receive one-half of the stock of the mining company in consideration of loaning to that company $500,000, secured by a mortgage on the ore property. Mr. Carnegie, then abroad, opposed the arrangement, but Mr. Frick closed the deal. A coolness between him and Mr. Carnegie resulted. Mr. Carnegie characterized the ore business as a source of great trouble and but little profit, and hoped that his prophecy would be remembered. For two years he held the ore interest in slight regard, but later he acquired a five-sixths interest in the Oliver Iron Mining Co.

In 1896, largely through the activities of Messrs. Frick and Oliver, was made the famous Rockefeller connection by which the Carnegie company leased the several Mesaba range properties owned by the Rockefellers on a royalty basis of 25c per ton, a consideration being that 600,000 tons of ore would be shipped annually and carried by the Rockefeller ore railroads and lake steamships. Inasmuch as 600,000 tons of Oliver ore was to be similarly shipped, it meant a great saving for the Carnegie interests.

Consternation struck the ore market when the deal became known, the price of ore dropped, and a number of owners made a rush to sell their mines. Mr. Oliver and his associates took advantage of the situation to obtain options on many of the choicest iron deposits in the Lake Superior District, Mr. Oliver spending the summer at the work. In 1897 he presented to the Board of managers of the Carnegie Steel Co. a masterly argument and array of facts by which he sought to justify the purchase of the properties. Mr. Carnegie, from abroad (the argument having been sent to him) turned down the proposal. Mr. Oliver then sent an almost pathetic appeal by cable to Mr. Carnegie, and the latter relented to the extent of leaving the question in the hands of the board of managers. The deal went through and properties later appraised at millions were obtained. It was this episode that prompted a biographer of Mr. Carnegie to say: "Fortune has repeatedly battered down the barricades with which he has tried to exclude her."

Arrangements were made for the delivery of the ore by the Bessemer Steamship Co. (which operated the Rockefeller fleet) and the Pennsylvania Railroad Co., when Mr. Carnegie made a bold stroke and decided to rebuild the Pittsburgh, Shenango & Lake Erie Railroad, a moribund line. In 15 months the road was rejuvenated, and by 1897 ore trains were running from the company's docks at Conneaut on Lake Erie to Bessemer, Pa., thence to be distributed over the Union Railroad to the various furnaces. Subsequently the company acquired its own steamships.

The Homestead Strike

In 1892, as stated, occurred the great Homestead strike, one result of which was denunciation of Mr. Carnegie at home and abroad because of his seeming indifference to the shocking occurrences, including violence which did not stop at bloodshed, all of which later became the subject of a United States Senate investigation and criminal prosecutions. Under the leadership of Mr. Frick the strike was fought to the bitter end, hunger and the militia finally wearing the strikers down. Meanwhile Mr. Carnegie was in Scotland, miles away from the nearest point of communication with the outside world. Overlooking completely the clear right of the company to hire whom it pleased, writers and publicists the world over assailed Mr. Carnegie for his seeming inconsistency, basing their view on his many published statements wherein he had exalted the dignity of labor, and also the rights of labor. "Thou shalt not take thy neighbor's job," a statement by him which appeared in one of his essays on industrial relations was seized by labor as indicative of his sympathy. But cabled appeals met no response. He stayed aloof until 1893, when he returned to America, then explaining among other things that he had retired from active business four years before.

Incidentally, it may be said it was just that the company should have won, as the men were fighting for the retention of a sliding scale regulating wages dating back to 1889, the basis of which had become unfair to the company. Prices had dropped to new low levels, yet the tonnage rates paid to the men remained the same. After billets receded from $25 per ton, under the arrangement it was sought to change, there was no reduction in the tonnage rate. Billets had fallen to $22 per ton. The company wanted to make $22 the minimum below which there would be no wage reduction, and after negotiation Mr. Frick offered to make $24 the minimum. The men refused to accept, and the fight was on. One alleged result was that it cost the Republican party the Presidential election of 1892. Out of the strike came good, for industrial harmony prevailed in the ranks of the steel workers during the prosperous years that followed, and the men made more money than ever before. The men were led to believe that Mr. Carnegie would take their part, not only because of his written expressions, but because in the great coke strike of 1887 he cabled from Scotland for the H. C. Frick Coke Co. to accede to the demands of the strikers.

Controversy with H. C. Frick

In a measure, the differences which developed between Andrew Carnegie and H. C. Frick led to the final sale of all the Carnegie properties and the formation of the United States Steel Corporation, for it was the institution of a lawsuit against the Carnegie Steel Co. by Mr. Frick that gave the world a better idea of the profits in steel and probably aroused the interest which financiers manifested later. As far back as 1895, according to one account, Mr. Carnegie had begun to show pique at the eminence Mr. Frick was winning through his successful conduct of affairs. Later came a clash of views as to what the Carnegie Steel Co. should pay the H. C. Frick Coke Co. for coke, Mr. Frick siding with stockholders in his company who held no interest in the steel company. Then followed criticism by Mr. Carnegie of Mr. Frick's course in a land deal. Mr. Frick had obtained the land, some six miles from a Carnegie plant, in a trade and had offered it to the company for what was said to be less than its valuation, but Mr. Carnegie opposed the purchase and intimated that Mr. Frick was making a profit. Later, Mr. Frick sold the land to others for half a million dollars more than he was willing to accept from the Carnegie Steel Co.

Mr. Frick, smarting under Mr. Carnegie's imputation, made a statement to the board of managers of the steel company in which he did not deal gently with Mr. Carnegie, and the latter soon after had the board of managers request the resignation of Mr. Frick. Mr. Frick resigned as a member of the board Dec. 5, 1899; the resignation was accepted, and he was thanked for his services as a board member since Jan. 14, 1889. The situation was embarrassing for the junior partners, but it was admitted by all conversant with the facts that they could only do as Mr. Carnegie directed. Mr. Frick offered to sell his interest at a price to be fixed by arbitrators, and this offer being declined, he offered to buy Mr. Carnegie's interest. Meanwhile directors had been ousted from the board of the H. C. Frick Coke Co., and others who could be counted on to support a coke contract favorable to the steel company were elected. On this score a suit was brought by dissatisfied directors and officials of the coke company.

Mr. Carnegie then laid plans for the complete elimination of Mr. Frick, his first proposition being the purchase of the latter's holdings at their book value, a proposal which aroused the ire of Mr. Frick. In the course of events, Mr. Carnegie sought to revive the first so-called "Iron-clad Agreement" to which reference has been made, this was entered into in 1887, in the life of Carnegie Bros. & Co. Succeeding agreements were made in 1892 and 1897, but neither had been signed by directors in sufficient number to make them effective in Mr. Frick's case. But through the medium of some board transactions, Mr. Carnegie had the way cleared,

as he thought, and notice was served on Mr. Frick that he must sell his holdings. Subsequently he was notified that his interest had been transferred to the Carnegie Steel Co. Mr. Frick filed his suit and, needless to say, immense interest was shown by the general public in the disclosures which appeared in his bill of equity.

The New Carnegie Corporation

Negotiations were than begun through intermediaries, especially F. T. F. Lovejoy, secretary of the company, with the result that out of a conference at Atlantic City was born a plan to organize the Carnegie Co., a New Jersey corporation with a capital stock of $160,000,000, to acquire the stock of the Carnegie Steel Co. and the H. C. Frick Coke Co. In the new company Mr. Frick was not excluded as a shareholder, although neither he nor Mr. Carnegie appeared as a director. In the adjustment of the steel company's book value at this time, a dividend of 88 per cent, or $22,000,000 was distributed. The next step in the affairs of the Carnegie company was its merger in the United States Steel Corporation.

Mr. Carnegie, unlike his partners, received for his holdings in the new corporation bonds, at the rate of $1500 per share. Like treatment was accorded to Mrs. Lucy C. Carnegie *nee* Coleman and George Lauder, the three receiving $144,000,000 for 96,000 shares. The total paid for the Carnegie properties was $447,416,640, and the owners had received $22,000,000 in dividends the year before.

Two or three efforts were made to sell, prior to the transfer to Mr. Morgan and his group. In 1899, English interests were considering the acquisition of the properties, and in the same year New York and Western capitalists, among whom were the Moore brothers, William H. and James H., (who had previously formed the National Steel Co. and the allied combinations in the tin plate, sheet and hoop trades), were so in earnest that they gave Mr. Carnegie $1,000,000 to secure an option. Messrs. Phipps and Frick were associated with this group, they contributing $170,000 additional option money. Adverse financial conditions caused the plan to fall through—and Mr. Carnegie retained the $1,170,000.

Mr. Carnegie's advocacy of unlimited competition in the steel trade was an outstanding feature in his policy. He believed in running works to capacity—and was forward in spending money so as to produce with the greatest economy. He considered that the fittest must survive and therefore was not a believer in measures which encouraged the maintenance of poorly located and hence high-cost plants. In his testimony at tariff hearings in the later years of his connection with steel-making and after his retirement, he showed little sympathy with tariff rates that would aid the smaller and, as he termed them, the unfit works. There were those who criticised his opposition to proper protection after he had come off so well under the selfsame policy. He was tireless in his urgings for greater and greater production records and the spur was never relaxed.

Authorship

Mr. Carnegie's habit of close observation and analytical thought found expression in several books and a larger number of essays, the latter appearing in leading periodicals. They dealt with travel, economics and philosophy. His "Triumphant Democracy," a glorification of things American, appeared in 1886. A number of his essays were gathered under the title "The Empire of Business" and published in 1902; another group, collated as "The Gospel of Wealth," appeared in 1906. Never ashamed of his own humble beginning, he sought to exalt the wage worker, one of his titles being "The Advantages of Poverty." At the same time he preached thrift, and one of his magazine articles was on "Thrift as a Duty."

He had decided views on labor, as may be imagined, and on this, as on international questions, was a pacifist. He wrote: "A strike or lockout is in itself a ridiculous affair. Whether a failure or a success, it gives no direct proof of its justice or injustice. In this it resembles war between two nations. . . . No excuse exists for a strike or lockout until arbitration of differences has been offered by one party and refused by the other. . . . The right of the workingman to combine and to form trade unions is no less sacred than the right of the manufacturer to enter into associations and conferences with his fellows, and it must, sooner or later, be conceded."

He wrote of the fear of trusts as a bugaboo, because he believed the consolidations would not endure, or at least would not prevent competition. In the "Empire of Business" he wrote: "It is not in the power of man to exact for more than a brief season, and a very brief season indeed, unusual profit upon actual capital invested, either in transportation or manufacture, so long as all are free to compete, and this freedom, it may safely be asserted, the American people are not likely to restrict."

Mr. Carnegie was an ardent anti-imperialist and wrote much on the subject. He declared foreign possessions a source of trouble and regarded with apprehension the acquisition of the Philippines by the United States. Possessions in the Far East would be fraught with disaster to the republic, he declared.

Benefactions

In biographical works Mr. Carnegie's avocation is given as a philanthropist, and of his benefactions a volume could be written. His sympathies inclined to the needs of education and educators and to propaganda for international peace. In giving $10,000,000 in Steel Corporation bonds for the establishment of the Carnegie Foundation for the Advancement of Teaching in 1905 he referred to educators as the "least rewarded of all the professions." Up to 1917 the total grants from the Carnegie millions, arranged by Mr. Carnegie himself or the Carnegie Corporation, the latter having been organized to handle his immense philanthropic enterprises, for the cost of 2865 library buildings all over the world amounted to $65,069,684.44. He gave $5,200,000 to pay for branch libraries in the city of New York. His other important benefactions including $10,000,000 to establish the Carnegie Institute, Pittsburgh; $22,000,000 to the Carnegie Institution, Washington; $10,000,000 to Scotch universities; $5,000,000 for a pension fund for the benefit of employees of the Carnegie Steel Co.; $5,000,0000 for the Carnegie Hero Fund Commission, Pittsburgh; $1,250,000 to the Carnegie Hero Trust Fund, Dunfermline, Scotland; $1,000,000 to the Carnegie Hero Fund for France; $2,500,000 to the Carnegie Dunfermline Trust; $1,750,000 for the Peace Temple at The Hague; $1,050,000 to the United Engineering Society and $500,000 to the Engineers' Club, New York. An authoritative statement issued at Washington on Aug. 11 by the Carnegie Endowment for International Peace credits him with gifts and grants, up to June 1, 1918, aggregating $350,695,653.40, this amount including $125,000,000 put at the disposal of the Carnegie Corporation of New York.

The basis of all his giving he thus summed up: "The main consideration should be to help those who will help themselves. . . . Neither the individual nor the race is improved by almsgiving."

Despite his vast accumulations in the United States, Mr. Carnegie never faltered in his love for his native country. He spent much time there, even when affairs would seem to require his presence here. Skibo Castle, his home in Scotland, long ago became a household word. Of late years his summers had been spent at Shadow Brook, his home in the Berkshire Hills of Massachusetts.

An Episode of 1899

The reference in the above review of Mr. Carnegie's career to the effort made by Mr. Frick and others in 1899 to acquire Mr. Carnegie's holdings in the Carnegie Steel Co., recalls correspondence I had with Mr. Carnegie at that time. It gives the opportunity also to present to the readers of THE IRON AGE a hitherto unpublished letter in which Mr. Carnegie wrote very plainly in depreciation of the consolidations in the steel

trade. After having given the option to the syndicate headed by Mr. Frick, Mr. Carnegie was soon apprised of the effort to make the Carnegie Steel Co. the main factor in a Central Western consolidation which would include the so-called Moore consolidations—the National Steel Co. and the allied sheet, tin plate and hoop companies formed early in 1899. The National Tube Co. was then (April, 1899) in process of formation. The Federal Steel Co. and the American Steel & Wire Co. had been launched in 1898. An all-embracing steel trust had come into the minds of a number of the trust-makers and John W. Gates was credited with some activity in that direction. However, the Frick-Phipps-Moore plan of 1899 did not go that far.

Evidently with no friendly feeling for any plan that would put the Carnegie Steel Co. into a consolidation after control of it had passed from his hands, Mr. Carnegie in April, 1899, wrote the following and sent it to the *Iron Trade Review*, of which I was then editor. In part the letter was typewritten, but there were penciled interlineations and the concluding portion was written with pencil:

"5 West Fifty-first Street,
"NEW YORK, April 19, 1899.

"Editor *Iron Trade Review*,
"Cleveland, Ohio.
"DEAR SIR:

"I do not believe any consolidation will be formed that will control the iron and steel trade of the United States. Putting together weak concerns does not make a strong one. As is shown in the tobacco and sugar trusts, they are sure to encounter competition. All are doomed to failure sooner or later. With some of them this will be so soon they might well say,

> If I was so soon to be done for
> I wonder what I was begun for.

"The present craze for consolidation in the iron and steel business is due to the fact that manufacturers have for a long time been doing business at little or no profit and they are glad of the opportunity to sell out. Some of them, as we see by their statements, lost money in 1897. And in disposing of their properties some of the older and wiser heads are doing well to look out for the future.

"Individual management will show its superiority in the future as in the past. What has been is still to be. And when the depression comes, as it surely will, some of the consolidations will not even pay their bonded interest. When a concern becomes the football of Wall Street it is owned by nobody or anybody, nobody knows who—a waif that will become a wreck at the first storm. Some corporations there are, in which a few persons are prominent as owners and in which individual management is marked, that are exceptions to the rule; but where stock is held by a great number, what is anybody's business is nobody's business. 'The eye of the owner maketh a fat horse,' not the eye of the salaried official.

"Very truly yours,
"ANDREW CARNEGIE."

At the time of writing the above Mr. Carnegie was preparing to sail for Europe. The terms of the option had been arranged, but the agreement was not actually signed until Monday, April 24. Mr. Carnegie sailed on Wednesday, April 26. In the conferences at New York with his partners just before sailing, he expressed himself strongly on the weakness and futility of consolidations in the steel trade and made mention of the fact that he had sent a communication of that purport to an iron trade journal. This statement naturally was like the explosion of a bomb. It was pointed out to Mr. Carnegie that the publication of such opinions from him would not only wreck the plans of those who had taken the option on his holdings but might even cause a panic among the holders of stocks of the steel consolidations already formed. Under the persuasions of these partners, Mr. Carnegie wrote the following which reached Cleveland on the day of his sailing:

"5 West Fifty-first Street,
"NEW YORK, April 24, 1899.

"Editor *Iron Trade Review*,
"Cleveland, Ohio.
"DEAR SIR:

"There was mailed you an unfinished article which I should have revised. I should ask you to return it for this purpose, but I am sailing for Europe. Please strike out several penciled passages in which I was altogether too hard upon new combinations. What I said may be all true, but it is not my part to say it.

"Please stop with the remark that 'individual management will show its superiority in the future as in the past,' and leave out all other penciled matter, especially the remark that 'some will not pay interest on bonds.'

"Your compliance will greatly oblige
"Very truly yours,
"ANDREW CARNEGIE."

Needless to say, the wisdom of publishing the letter, even as amended by Mr. Carnegie's hastily written second thought, saying nothing of the responsibility involved in acting on his very general authorization to "strike out several penciled passages," was a subject of serious questioning on the part of the recipient. Mr. Carnegie's partners were not slow in urging that the editorial prerogative be exercised in withholding the letter from publication altogether. They also followed Mr. Carnegie with cables calling for the withdrawal of the letter, and within a day or two after his arrival in Scotland he cabled his compliance with this request. Subsequently in a magazine article he repeated some of the sentiments contained in his letter to the writer; but that was after the United States Steel Corporation had been formed and all the perils of the promotion period in steel consolidation had been safely passed.

While in Great Britain on the visit referred to above, Mr. Carnegie announced that he had virtually retired from the steel business. He seemed confident that the option he had given would be exercised and even referred to the "million a month for libraries" that was one of the pleasant prospects growing out of the sale. But the death of Roswell P. Flower and the liquidation of many securities he had been supporting changed the whole aspect of Wall Street financing and bankers had little courage for fresh ventures. Messrs. Frick and Phipps went to Scotland to get an extension of the option, but Mr. Carnegie refused.

In the next 18 months Mr. Carnegie was making plans for a still greater Carnegie Steel Co. The large purchases of land at Conneaut, Ohio, the plans for a great tube mill there, and later the threat to build a railroad line to the seaboard in competition with the Pennsylvania Railroad are familiar developments of that period. In February, 1901, came the negotiations on behalf of the Morgan interests which resulted in Mr. Carnegie's retirement and the formation of the United States Steel Corporation. A. I. FINDLEY.

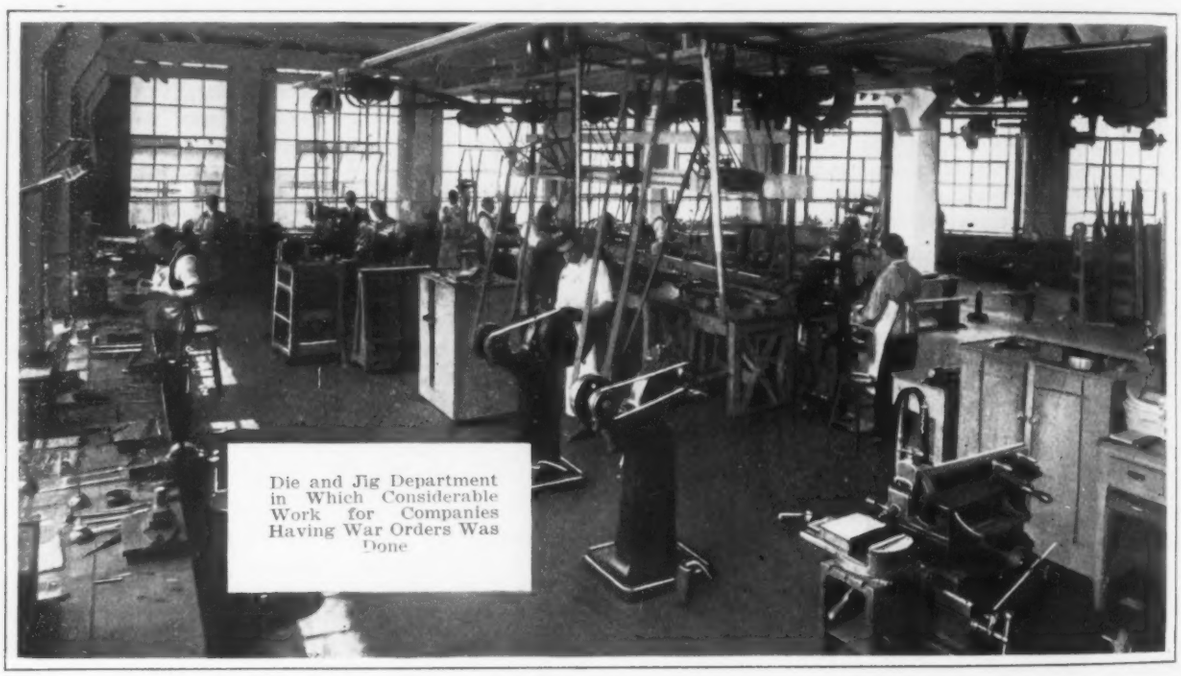
At a recent meeting of the Machine Tool Trades Association, according to the *Engineer*, London, it was decided to recommend to the British Engineering Standards Association that it should ask the American Society of Mechanical Engineers to adopt the same standards for T slot cutters as may be ultimately decided upon for this country, and also to ask the British Engineering Standards Association to make a preliminary investigation into the standardization of gears.

A GOLDEN GATE FACTORY

Foundry Added to the Marchant Calculating Machine Plant

Many Easterners, in the belief of people in the Far West, do not associate the Pacific Coast with manufacturing, especially in metal working, and are inclined to give the West credit only for assembling parts made in the large Eastern manufacturing centers. The Marchant Calculating Machine Co., on the shore of San Francisco Bay at Emeryville, Oakland, Cal., which manufactures the Marchant calculating machine, a small device, but one which requires castings and many finely machined parts, is a manufacturer with a self-contained plant throughout. The company emphasizes the fact with some pride.

Every operation in the making of the calculator is performed in the company's own plant, a foundry for the production of iron and brass castings being the latest unit added. In addition, all machining, tool-making, nickel-plating, enameling, japaning, stamping and other operations are done under the company's roof. The extent of the plant is shown by the accompanying illustrations. In 1914, it occupied 2700 sq. ft.; now it has 57,000 sq. ft. During the war the company executed



Die and Jig Department in Which Considerable Work for Companies Having War Orders Was Done

tool-room orders for the Liberty Iron Works, Holt Mfg. Co. and several eastern manufacturers who had war work.

The machine shop, containing automatic screw machines, lathes and shaping, planing, punching, drilling and other machines is housed in a shop in the main building unit which is 400 ft. long. It is a one-story reinforced concrete building.

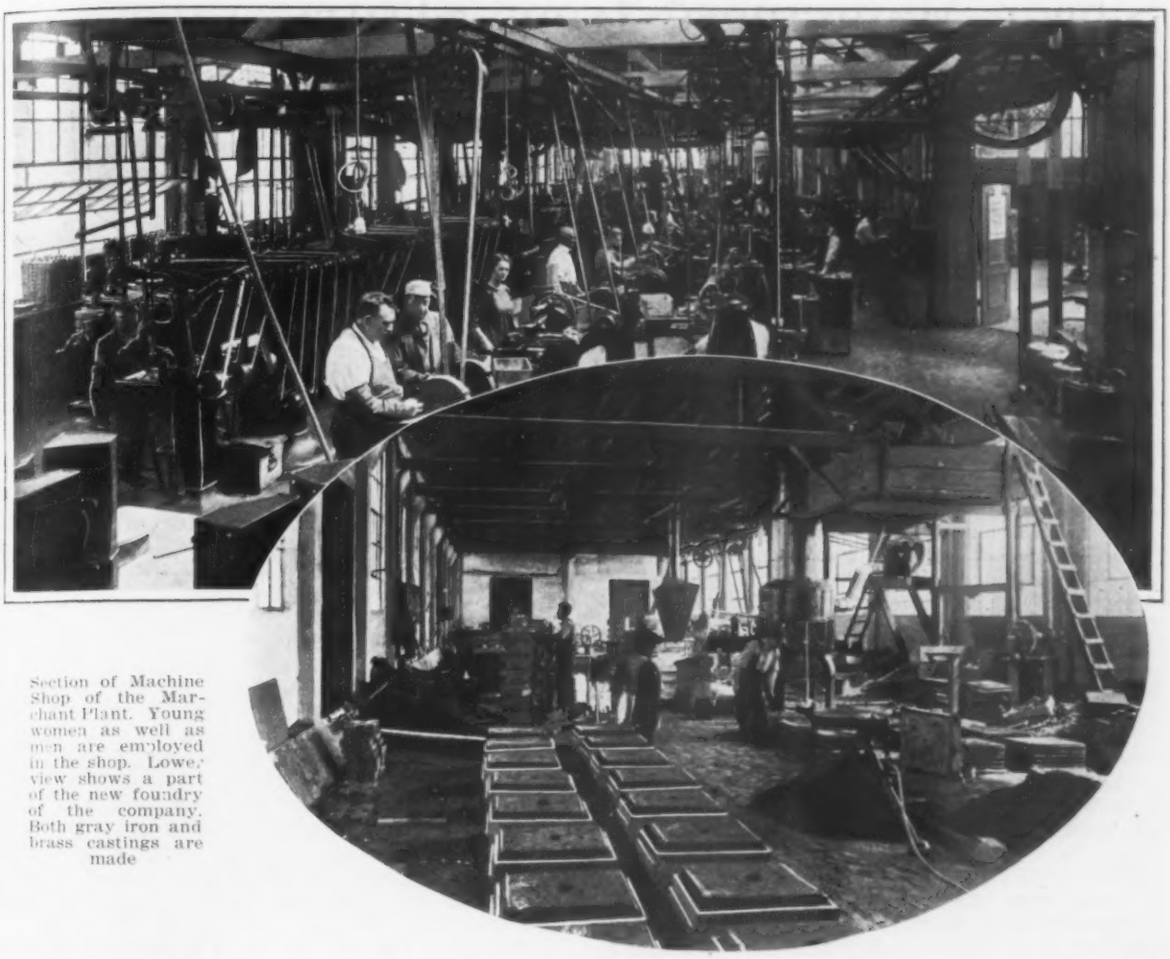
Railroads Inquire for 100,000 Tons of Rails

WASHINGTON, Aug. 12.—The Railroad Administration is sending out to rail producers inquiries on rail prices. The Administration is careful not to commit itself as to its needs and desires. The inquiry sent out to each of the producing companies asks the price on 100,000 tons, but it is declared that the Administration does not know whether it will require a full 100,000 tons, the chief item being the question of price. It is also intimated, however, that if the price is low enough, the Administration may require more than 100,000 tons. The letter sent out asked each company to make separate bids on Bessemer and open-hearth rails as well as to specify prices on rails running from 80 to 130 lb., giving base prices in each case, both for Manufacturers' Standard specifications and the A. R. E. A. specifications. The official statement given out by Director General Hines declares that "The Railroad Administration has sent inquiries to a number of steel companies asking each at what price it is ready to supply 100,000 tons of steel rails. Inquiries relate separately to Bessemer rails and open-hearth rails. Replies to the inquiries have been requested by Aug. 16. A decision as to the amount of rails to be purchased will be reached following the receipt of the proposals of the various steel companies."

Future of Belgium Zinc Industry

WASHINGTON, Aug. 11.—The Bureau of Mines has published a special report on the zinc industry in Belgium, by March F. Chase. "The principal reason," says the report, "for the smelting of zinc ores in Belgium was the fact that country had an abundance of cheap skilled labor, the proper quality of clay for retorts, cheap coal and cheap water transportation. Of these four factors, probably the most important was that of labor. The past four and a half years of enforced idleness, together with the removal of many of the workers from towns near the smelting plants, has resulted in a thorough disorganization and demoralization of labor, and its effects will be felt for some time in the industry, both in respect to the efficiency of the operations and also in the labor cost. The future of Belgium as a zinc-producing country is not particularly bright, but the relative position it will occupy from now on is not easily predicted.

"It is rather certain that for some years to come, production will be far below pre-war figures and may never reach the 1913 level. The rehabilitation of the industry, even to a limited extent, will depend upon the obtaining of prompt and reasonable supplies of ore. If these are not promptly provided, the greatest asset that Belgium had—that is, the skilled workmen—will be lost, as these men undoubtedly will seek employment either in other countries or in other industries. The smelting capacity outside of Belgium has been so vastly increased that it can easily take care of the world's requirements and only the plants that are in position to operate on low cost and high recovery can hope to compete successfully. The present cost of coal will no doubt come down, but the political and commercial control of the primary raw material, being outside of Belgium, will always work against the continuance of the industry. One factor that will be helpful, however, will be a profitable market for the by-products. This may compensate to a considerable extent for the disadvantages under which the indus-



Section of Machine Shop of the Marchant Plant. Young women as well as men are employed in the shop. Lower view shows a part of the new foundry of the company. Both gray iron and brass castings are made

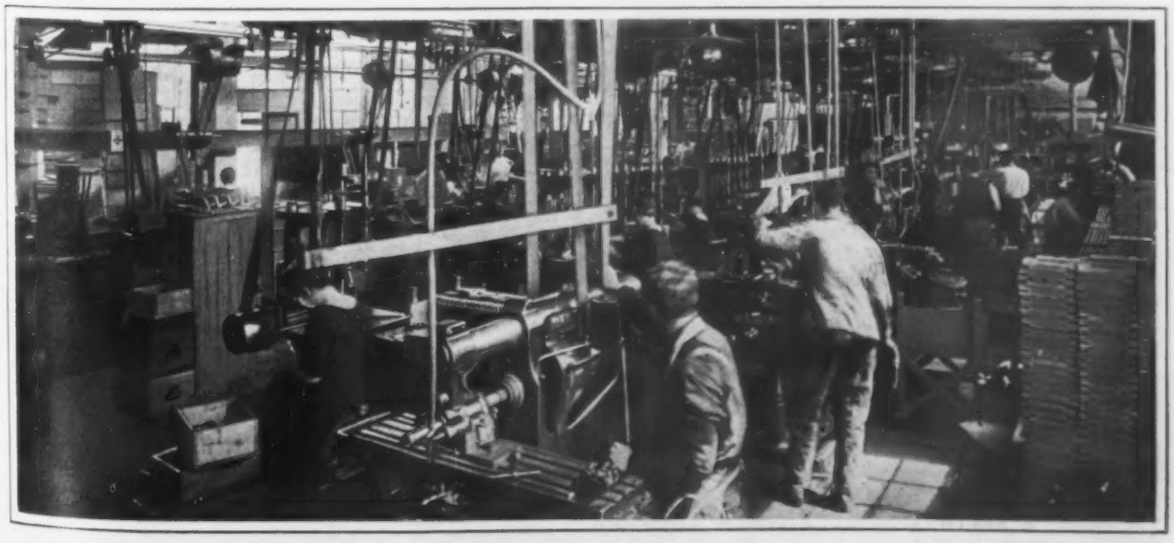
try will otherwise be in its efforts to rehabilitate itself.

"Aside from commercial considerations, the present physical condition of the plants will tend to retard the resumption of operations. During the last two years of the occupation, the idle plants suffered largely through lack of maintenance, and from equipment of all kinds being removed. Naturally there was some distinction made in the character of material removed from the plants that were German owned, and those owned by Belgians. The former operated to a limited extent during the entire period of occupation and are in fair shape to resume work on an extensive scale.

"The ore stocks were generally removed to the German plants in Belgium; serious attempts were made to keep these running in part; nevertheless, even these suffered very considerably from careless operation.

"The Belgian engineers have contributed largely to the metallurgy of zinc, and while they are now handicapped in so many ways, it is entirely within the realm of possibility that they can meet the situation and restore the industry to a fair percentage of what it was before the war."

A new type of pyrometer or heatmeter developed by P. G. Foote and T. R. Harrison of the Bureau of Standards, Washington, is being manufactured by the Brown Instrument Co., Philadelphia. The instrument is direct reading throughout its entire scale range and requires no dry cells or standard cells. It is independent of line or thermo-couple resistance and is said to have a negligible temperature coefficient.



Row of Milling Machines, Back of Which Are a Row of Drilling Machines Operated by Young Women. The Marchant factory is a self-contained plant

Silicon-Manganese from Electric Furnaces*

Practical Manufacturing Data for Various Compositions—Manganiferous Slags as Raw Material—Uses for the Alloy

BY B. G. KLUGH

THIS paper presents some observations and data obtained in actual practice producing alloys of silicon and manganese in electric furnaces. It is not confined to the alloy denoted in a strict nomenclature as silico-manganese, in contradistinction to a silico-spiegel, mangano-silicon, or other terms, but broadly to such alloys as contain 20 per cent or over of silicon and 25 per cent or over of manganese.

There was not during the period covered in these observations any definite demand for any specific grades of the silicon and manganese alloys, nor were there always available the most desirable raw materials from which to produce the alloys required. The wide range of the constituents of the silicon-manganese alloys produced and the unusual class of materials treated were governed largely by war-time conditions, or orders demanding special alloys, or by the necessity of converting the raw materials available into those products to whose manufacture they were best adapted. The facts obtained in this experience are presented for whatever value they perchance may have to those interested.

Furnace Equipment

The furnaces used in this work were of the rectangular open-top type. Two sizes were used in the principal portion of this work. One furnace, which we designate as the *A* furnace, is constructed of a steel shell 15 x 7½ x 5 ft. (4.5 x 2.25 x 1.5 m.) high. It is of a 3-phase type, with 3 electrodes in line. The lining is of carbon with walls 18 in. (45 cm.) thick and bottom 2 ft. (60 cm.) thick. The tap hole is in the center and at one side in line with the middle electrode. Water-cooled copper electrode holders are used. The current is furnished through three 500 kv.a. transformers, being delivered at 22,000 volts on the primary side and reduced to 65 volts on the secondary side. The control of the furnace is effected by means of winch control of the electrodes.

The other furnace, designated herein furnace *B*, is of the same general type of construction but has a shell 18 x 9 x 5 ft. (5.4 x 2.7 x 1.5 m.) deep, and is lined with carbon with 18 in. (45 cm.) wall and 30 in. (75) cm. bottom. The current is furnished through three 1,000 kv.a. transformers, being delivered at 22,000 volts on the primary and transformed down to 100 volts on the secondary. The control and tapping arrangement is practically the same as that of furnace *A*.

Raw Material Used

Considerable reference is to be found in the literature upon the theoretical production of silicon-manganese alloys from definite minerals, such as rhodonite, pyrolusite and quartz, or other pure materials. However, no such materials were available, in cost or quality commensurate with economic production, during the period in which these data were taken.

The use of a fairly pure manganese ore, with silica rock as raw material for silicon-manganese, is hardly commercial, due to the better adaptability of such manganese ores to the production of ferromanganese. The high current consumption in the production of silicon-manganese renders the use of low-cost raw materials imperative.

Practical Data

The operation of above described furnace *A* was recorded over a period covering the production of about 50 tons of alloy of the average analysis of about:

	Per Cent		Per Cent
Manganese	65	Iron	13
Silicon	21	Carbon .....below	1

The analyses of the raw materials charged were as follows:

	Mn	Fe	SiO_2	Al_2O_3	CaO	MgO	BaO	H_2O
Ore	33.11	2.41	15.19	3.96	1.96	0.62	0.50	10.72
Ore	34.00	3.19	32.85	3.12	....	0.26	0.62	1.00
Ore	17.87	2.96	32.97	8.72	0.39	0.50	1.10	22.20
Limestone.	...	...	0.90	0.42	54.87	0.75	...	.....

The above materials were the sources of metal and flux. The reducing agent used was an Alabama bituminous coal containing: Fe: 0.85, SiO_2: 10, Al_2O_3: 8.15, fixed carbon: 54, volatile carbonaceous matter: 21 per cent. The metal produced was fairly uniform, of the analysis given above. The slag produced, as compared with that of the calculated chemical balance, is shown in the following table:

	Mn	SiO_2	Al_2O_3	CaO	MgO	BaO
Actual	5.21	36.34	15.28	37.04	1.71	2.39
Theoretical	[5.21]	34.55	16.76	39.02	1.43	1.47

The manganese found in the actual slag is used in the calculation of the theoretical slag, to bring them to a comparative basis.

The slag was at all times free flowing, and with no tendency toward "gumming up" of the tap hole, except where an occasional excess of carbon produced a small percentage of carbides. This is usually incident to the tendency of electrodes to rise out of the charge, with the formation of bridges between the electrodes. Very careful operating control is necessary to preserve the uniformity of operation required for the successful continuous production of metal above described.

The high slag volume, while consuming considerable current, preserved a balance of heat in the high-temperature zone of the furnace. The recapitulation of the data obtained from careful records of the above described run is as follows:

Ratio of ore to metal		3.53
Per cent of manganese charged found in metallic alloy		73.00
Per cent of manganese charged found in slag.....		10.02
Per cent of manganese charged in gas (by diff.).....		16.98
Per cent of total weight of charge passing in metallic alloy		16.11
Per cent of total weight of charge passing in slag...		31.31
Per cent of total weight of charge passing in gas....		52.55
Pounds slag per ton metal.....4,358=		2,579 kg./ton
Pounds gas per ton metal.....7,308=		3,654 kg./ton
Pounds electrode per ton metal..... 168=		84 kg./ton
Pounds reducing carbon per ton metal..1,715=		858 kg./ton
Kw. hours, per ton metal .....9,000=		10,000 per ton

From the above data it will be seen that the practice is far from ideal economic operating conditions but are results obtained with supplies obtainable under war-time conditions.

The high slag volume was maintained in order to preserve the alumina balance required for a fluid slag under these conditions. There appears to be a range of slags in electric furnace practice, with alumina increasing from 15 to 30 per cent, within which the viscosity increases, producing a sluggish slag which is difficult to tap and tends to keep in suspension large quantities of hot metal.

Use of Manganiferous Slags

During the early part of 1918, when the shortage of manganese ore was so acute, it became necessary to resort to an accumulation of slag of high manganese content in order to continue operations and supply the demand for manganese. The high manganese slag from all the previous production of ferromanganese in electric furnaces had been stocked, in view of possible future emergency or the development of a means of utilizing it. Several carloads of slag from a blast furnace producing ferromanganese were also obtained.

This slag was used as the sole source of manganese and silicon, in the production of silicon-manganese, in

*From a paper presented at the spring meeting this year in New York of the American Electrochemical Society. The author is with the Southern Manganese Corporation, Anniston, Ala.

several furnaces of the type above described under *A*. A small quantity of iron turnings was used to supply the necessary iron for the alloy and to furnish a more conductive charge in the furnace. There was a considerable variation in the composition of the slag treated during this period, which covered considerably over a month, and in which time about 100 tons of metal was produced. An approximate average analysis of the production of metal was:

	Per Cent		Per Cent
Manganese	70	Silicon	20
Iron	9	Carbon	below 1

A low-ash bituminous coal was used as reducing agent.

A fair average of the analysis of the slag treated and that produced was:

	Mn	SiO_2	Al_2O_3	CaO	MgO	BaO
Slag treated	20.00	34.00	14.00	25.00	2.00	1.50
Slag produced	1.00	29.12	23.02	42.16	2.73	1.61

The slag produced was 4.7 times the weight of the metal, or 9,400 lb. slag per ton of metal. This would be anything but an inviting proposition for normal economic conditions. However, in consideration of the fact that the manganese in the slag used in this test had already been charged off, and the fact that it was at that time the only source of raw material available to keep the plant in operation, the operation in this case showed a profit even with a current consumption during this period of about 15,000 kw. hr. per ton of metal produced (16,500 kw. hr. per metric ton).

The slag produced was of a rather sluggish and sticky nature, tending to form accretions in the furnace. This is no doubt due to the alumina being within the range producing such character of slag. The maintaining of a regular balanced current input on all the phases was accomplished with considerable difficulty, but with an average degree of success.

The interesting technical feature of this operation is that 96 per cent of the manganese in the slag treated was recovered in the metal.

An unusual product was made over a considerable period during the past year, upon a special order for an alloy of approximately manganese, 20 per cent; silicon, 50 per cent; iron, 30 per cent.

As in the former cases cited, the high-grade manganese ore on hand was considered too valuable to be used, with the heavy current cost of the silicon reduction. Furthermore, there existed the moral obligation to convert all possible manganese into ferromanganese, which the steel makers required for war material production. Therefore, the above special silicon-manganese alloy was produced from raw materials which were in no way suitable for conversion into ferromanganese. The materials used were:

	Mn	Fe	SiO_2	Al_2O_3	CaO	MgO	BaO
(A) Ore	23.21	8.55	37.00	5.00	1.36	0.25	1.10
(B) Ore	17.50	3.32	47.27	4.24	0.09	0.83	0.74
Silica rock	....	0.70	96.00	1.00	1.00	1.00	...
Turnings	....	98.00	....	...	...	...	...
Limestone	....	...	0.68	0.32	54.30	1.24	...

The reducing agent used was a mixture of bituminous coal and coke. It was necessary to add lime to the charge in order to produce a slag of sufficient fluidity. This obviously required additional lime, and retaining some silica unreduced to maintain the balance.

Unfortunately, this period of operations was not furnished with the data such as weighing of slag, etc., in order to present an exact metallurgical balance sheet. However, the operation was throughout made with little practical trouble. Contrary to the usual advice that slag is a source of insurmountable trouble in electric furnaces, where alloys of silicon content above 40 per cent are produced there were practically no serious tapping troubles. The tapping arc was not used once during the period of the run on this metal, and the slag usually flowed freely. Even the cleaning of the metal from the slag was not a serious problem. An average analysis of the slag for the entire period was:

	Per Cent		Per Cent
Manganese	3.42	Lime	22.41
Silica	48.44	Magnesia	2.93
Alumina	16.95	Barium oxide	0.70

The data of the complete run are as follows:

Ratio, ore to metal	2.31
Per cent of total manganese in metallic alloy produced	95.00
Per cent of total manganese in slag	1.1
Per cent of total manganese in gas	3.9
Per cent of total weight of charge as metallic alloy	22.58
Per cent of total weight of charge as slag	13.42
Per cent of total weight of charge as gas	64.00
Pounds slag per ton metal	1,333 = 667 kg./ton
Pounds gas per ton metal	6,359 = 3,180 kg./ton
Pounds electrode per ton metal	227 = 113 kg./ton
Kw. hours per ton metal	9,907 = 11,000 per m. ton
Voltage at furnace	100

The volatilization loss of the manganese was kept quite low in this run, but that of the silicon was about 20 per cent of the total charged.

A number of exhaustive analyses have been made upon silicon-manganese alloys through the range of silicon content from 10 to 55 per cent. Calcium, aluminum, and magnesium are practically absent in every case, notwithstanding the amounts of the oxides of these metals in the furnace.

Uses and Probable Future of Silicon-Manganese

Practically no authentic statistics are available upon the quantity, composition or specific uses of silicon-manganese in this country or abroad. Harden states that 3,500 to 4,000 tons are produced in Sweden per year. A number of writers refer to the use of such alloys abroad, but give nothing tangible or specific.

Several hundred tons were produced by the Southern Manganese Corporation during the past two years. This, as stated above, was generally upon special orders, and as shown above covered a wide range of content of the various constitutents. The control of the content of the various constituents specified was accomplished so readily that shipment were uniform within the limit of analytical error.

The most valuable and authentic paper that has come to the writer's attention, bearing upon this phase of the manganese silicon alloys, is that of Samuel L. Hoyt, entitled "Manganese Alloys in Open-Hearth Practice," presented at the February meeting in New York of the American Institute of Mining and Metallugical Engineers [THE IRON AGE, May 22, 1919]. Mr. Hoyt gives a resumé of data obtained from actual practice, covering a period of three years, and shows a parallel of comparative results of the use of ferromanganese and ferrosilicon, as against that of silicon-manganese: The conclusions and summary of Mr. Hoyt's observations are interpreted by the writer as follows:

The average amount of manganese remaining in the steel, using ferromanganese and ferrosilicon, was 80.9 per cent, while the average using silicon-manganese was 91.3 per cent.

They show that the same results as to manganese and silicon content of the finished steel can be obtained by using silicon-manganese with smaller amounts of manganese and silicon, as compared to using the combination of ferromanganese and ferrosilicon.

There is the advantage of having a more uniform practice, which in itself would warrant smaller additions.

The low carbon content of the silicon-manganese may or may not be a material advantage, but it is in favor of the single alloy addition, because the carbon need not be worked as low, and there seems to be less danger of missing the carbon.

The indication of the results obtained in actual practice is that silicon protects the mangnese in oxidized heats.

The manganese-silicon alloy would appear, in steel casting, to have the distinct advantage of making cleaner and sounder castings.

The last statement has the basis of scientific reasoning, since the portion of the alloy performing the function of deoxidizing will, in the case of ferrosilicon, produce a certain amount of silica, a highly refractory oxide, which solidifies far above the temperature of molton steel, and has a natural tendency to remain in the ingot or casting as inclusions, which is very detrimental to the product. On the other hand, when the deoxidizer is applied in the form of a definite alloy, its oxidation product is that of silicate of manganese and possibly iron, with a melting point far below that of molten steel, and with a natural tendency to coalesce into larger aggregate and free itself from the steel.

The wide range of silicon-manganese alloys demanded by the trade shows that no definite lines of

standard practice exist among steel workers. There will always be a certain degree of individuality in the metallurgical practice of steel metallurgists. If they adopt the use of silicon-manganese alloys as standard practice, they will no doubt demand a definite analysis of the alloy, and insist upon accuracy and uniformity in the quantity supplied. This can readily be furnished to individual specifications, as shown by the development of the industry during the past two years.

Some steel metallurgists of note have objected to the introduction of silicon-manganese into their works, due to the purely operating difficulty of having a third alloy, in their standard practice, which would possibly hazard its undesired charging at times by workmen. This objection is well founded in the light of the personal equation of the average melting force. On the other hand, should the metallurgists arrive at the standard silicon-manganese ratio desired, there could be furnished a standard alloy to specifications, which would bring the practice down to the use of one alloy instead of two.

The technical development of the American silicon-manganese industry has been established, and the product shown to be advantageous. The continuance of this and other ferro-alloy industries will depend largely upon the action of our national legislative body.

Economical Production of Electric Steel

Importance of Low Carbon Scrap and Good Water—Maintenance of Low Electrical Consumption—Life of Linings

SOME of the factors in the economical production of electric steel are discussed by J. A. Holden in an article in a recent issue of the London *Iron and Coal Trades Review*. After stating that the war is responsible for the rapid growth in the last four years of the use of the electric steel furnace, due to the huge requirements in aeroplane and automobile steel and the dearth of Swedish iron, the author asks the question as to what are the prospects for the electric furnace on a peace basis, which he answers as follows:

It seems clear that the electric process is destined to prove a serious competitor with the older and more established methods of steel production. It must also be remembered that the electric furnace has properties which make it a very necessary adjunct to any modern steel works; by its use steel turnings and borings can be melted, refined and cast into steel of excellent quality. In fact, the chief use of the process has been in dealing with charges made up entirely of scrap. Developments may eventually take place in refining converter and open-hearth steel.

Low Electrical Consumption

One of the chief factors in the economic production of electric steel is a low consumption of reliable and cheap current. In this connection cheapness of current must not be confused with low price; in the writer's opinion a reliable supply is an acquisition to be prized. The following experience will clearly illustrate this point. A furnace was working upon a load of 650 kw.; a breakdown at the power station put one generator out of action for one hour, and in consequence the furnace load had to be reduced to 400 kw. This meant that the melting hardly advanced in that period, and for all practical purposes it amounted to an increase of one hour to the duration of the heat. When estimating the loss under this and similar circumstances, one must remember that it is not merely a question of current and wages, but the damage to the furnace must also be taken into account.

In order to maintain a low electrical consumption many points must be considered. In the first place, it is absolutely necessary to secure the right type of furnacemen. The work demands men of robust constitution, who overcome the many little difficulties which may arise—men who can act when most other people are helpless with excitement. Such qualifications are invariably appreciated in the operation of any steel furnace; on an electric furnace they are invaluable.

It is perhaps unnecessary to add that the wages and bonuses paid must be sufficiently attractive to retain good workers and, further, to induce a consistently large output. In addition to the standard wages and tonnage paid, it is advisable to pay an extra tonnage for every 10 tons above the figure at which a profit can be made. For example, if an output of 30 tons is sufficient to make a small profit, then add, say, an extra 2d. per ton for an output of 40 tons, and 4d. for any output over 50 tons. This additional tonnage paid to the furnacemen, and a proportional amount to all the other men directly working on the steel production, will materially improve the co-ordination between the different sections.

Clean Scrap

Clean scrap is much preferable to material containing waste, pieces of paper, and other remnants of machine-shop refuse. As the atmosphere of the electric furnace tends to become reducing, it cannot be considered suitable for any considerable oxidation, and in practice dirty scrap proves very costly to oxidize. In the early stages of the heat the area and volume of the molten bath are very small, and, as a consequence, the depth of the slag layer is correspondingly great. It may be sufficiently deep to bury the arcs, and this may occur irrespective of the kind of scrap. Under such conditions the noses of the electrodes act as powerful reducing agents, the duration of the heat will be prolonged and the electrode consumption becomes excessive. An experienced furnaceman knows by the character of the flame issuing from the electrode holes if the melting conditions are correct, for if the noses of the electrodes are touching the slag, luminous, lazy, licking flames will be emitted. In addition, the drone of the arcs will be disturbed by dull-sounding miniature explosions.

Low-Carbon Scrap Preferred

In addition to securing clean scrap, it is important to consider the percentage of carbon it may contain. If this element is very high it means a prolonged period of oxidation, because the carbon must be reduced to about 0.10 per cent in order to eliminate the bulk of the phosphorus. If, on the other hand, the charge contains a very low percentage of carbon it is difficult to melt it. In practice the writer has found that if the charge contains between 0.30 and 0.60 per cent it can be melted and oxidized very rapidly.

Short, heavy turnings or borings are in great demand for electric furnace charges, but as such choice material cannot always be obtained, lighter varieties have to be used; in the latter case it is economical to crush the turnings.

Effect of Poor Water

The water pipes and connections are a not infrequent source of trouble, for if the water contains calcium carbonate, this will be gradually deposited in the coolers, and if they are not regularly cleaned out they become choked. Eventually a pressure of steam will be obtained, and the water conections will ultimately be blown off. Halfway through a cast such an incident would seriously prolong the duration of the heat; that is, if it is decided to change the cooler and make new connections. If it is decided to run without changing the choked cooler, the damage to the roof is certain to be considerable. Delays and damage of this kind can be minimized by periodically cleaning the coolers and overhauling the water connections. To be able to do this effectively it is necessary to have two

sets of coolers in commission, so that one set is in use while the other is being cleaned. The change-over can be readily effected during the week-end, just prior to commencing the week's run. It will be obvious that an analysis of the water will indicate whether it is likely to prove troublesome; and if the water is taken from a well in the vicinity of the works, an examination of the salts in solution will show whether it is preferable to the public supply. Generally, well waters are loaded with salts, and in the majority of cases the public supply should prove the least troublesome.

Life of Furnace Lining

One of the chief items in the cost of producing electric steel is the life of the furnace lining. Operating the furnace continuously gives a considerably longer run than when the furnace is shut down for a period every 24 hr. No ordinary refractory material can be expected to withstand heating to a white heat for 15 hr. and then going nearly cold for 9 hr. This point deserves serious attention when night loads and intermittent loads are offered at a low price per unit. Working a 3-ton basic-lined Heroult furnace night and day, and closing down every week-end, the writer has secured a life of six weeks out of the roof and lining. To do this several precautions had to be taken. In the first place, the furnace was thoroughly cleaned out after the final cast on Saturday morning; then the hearth was packed with coke; finally the doors and electrode holes were luted with ganister. When starting up for the week's work the writer prefers to pre-heat for a few hours, commencing with a very small current, and keeping the arc from striking the hearth of the furnace by maintaining about 9 in. of coke underneath each electrode.

High Current Consumption for Alloy Steels

One often reads of discussions on the amount of current necessary to produce a ton of steel, but one rarely sees this item connected with the type of steel. It is obvious that to make a steel requiring a considerable percentage of added alloys (such as 12 per cent manganese steel) will consume much more current than a 0.75 per cent carbon steel. It is in the manufacture of alloy steel that the organization of the laboratory plays a not unimportant part; a live chemist will have everything in readiness for analyzing his bath samples. In order to ease the pressure on the chemist during the last stages of the heat, it is sometimes better to take a sample immediately before removing the first slag. This applies in particular when the charge contains nickel or chromium, for nickel and chromium can then be estimated without much risk of later material alteration to the percentages.

Belgian Production Figures

Of all the industries of Belgium the mining of coal has suffered the least from the wanton destruction of the Germans, according to the *Annales des Mines de Belgique*, which printed a report of the Belgian Department of Industry and Labor. The coke ovens and the iron and steel industry have not fared so well. Some of the coke ovens have been operated without necessary repairs while others were totally destroyed, among these the ovens of the Cockerill plants. A large portion have been completely dismantled by the Germans and the by-product installations either destroyed or carried away. The following table compiled by the investigation committee shows the effect of this policy on production:

Belgian Coke Production—Metric Tons

Year	Hainaut	Liége	Other Provinces	Total
1913	2,220,180	877,130	445,690	3,523,000
1914	1,406,460	595,210	.....	2,001,670
1915	424,460	90,140	.....	514,600
1916	667,530	124,820	.....	792,350
1917	648,210	27,830	.....	676,040
1918	509,150	13,060	.....	522,210

The following is a table of iron and steel production 1913-16, inclusive:

Belgian Iron and Steel Production—Metric Tons

Year	Hainaut	Liége	Namur	Other Provinces	Total
1913	1,189,650	896,360	31,030	107,020	2,224,060
1914	641,560	519,860	14,870	62,490	1,547,410
1915	76,590	85,580	.....	2,200	164,370
1916	130,945	90,260	.....	2,130	200,821

The report states that the plants at Hoboken and Overpelt, owned by German capital, are in good working condition.

Merger of Car Equipment Manufacturers

Several railway equipment manufacturers in which P. H. Joyce, president of the Illinois Car & Equipment Co., Chicago, is interested will be consolidated, if present plans mature. The merger will include the Illinois Car & Equipment Co., Chicago, the Steel Car Co. of Cleveland, the Liberty Car & Equipment Co., Chicago Heights, Ill., the Illinois Nut & Bolt Co., Hammond, Ind., the Southern Wheel Co., St. Louis, and the recently incorporated Liberty Car Wheel Co. of Indiana, Hammond, Ind. The Liberty Car Wheel Co. has acquired a tract of 27½ acres in Hammond as the site for a large plant. It will manufacture cast-iron car wheels by a new process.

The Wisconsin Steel Co., South Chicago, Ill., is having plans drawn for a 12-furnace open hearth plant and a blooming mill.

Government Brass for Sale

WASHINGTON, Aug. 12.—The War Department is preparing to offer for sale under sealed bids, its surplus of brass, totaling approximately 192,347,057 lb. The material embraced in the proposed offering includes anvil brass, brass rods, brass bars, brass billets, cast bars, component parts of ammunition, disks, "gilding brass," leaded brass, primer metal, sheets and coils, spring brass, tubing and scrap.

In announcing the sale, the War Department says, "The material to be offered is divided into two general classes, namely, that known to the trade as "70-30" which was used in the manufacture of small arms and field artillery cases, and that known as "60-40" which was used in the manufacture of fuses for shrapnel and high explosive shells.

The specifications under which the material was purchased are as follows:

The 70-30 Brass

Copper, per cent	68–71
Zinc, high grade, per cent	29–32
Iron, maximum, per cent	0.05
Lead, maximum, per cent	0.07

Not more than a trace of any impurity.

The 60-40 Brass Forging Rods

Copper, per cent	59 –62
Lead, per cent	1½– 2½
Iron impurity, maximum, per cent	0.15
Total impurities, maximum, per cent	0.25
Zinc	remainder

The 60-40 Brass Drill Rods

Copper, per cent	60–63
Lead, per cent	2– 3
Iron impurity, maximum, per cent	0.15
Total impurities, maximum, per cent	0.25
Zinc	remainder

Gilding Metal

Copper, per cent	94–96
Zinc, per cent	4– 6
Iron, maximum, per cent	0.05
Lead	trace

Cupro-Nickel

Copper, per cent	83–87
Nickel, per cent	13–17
Iron, maximum, per cent	0.3
Manganese, maximum, per cent	0.4

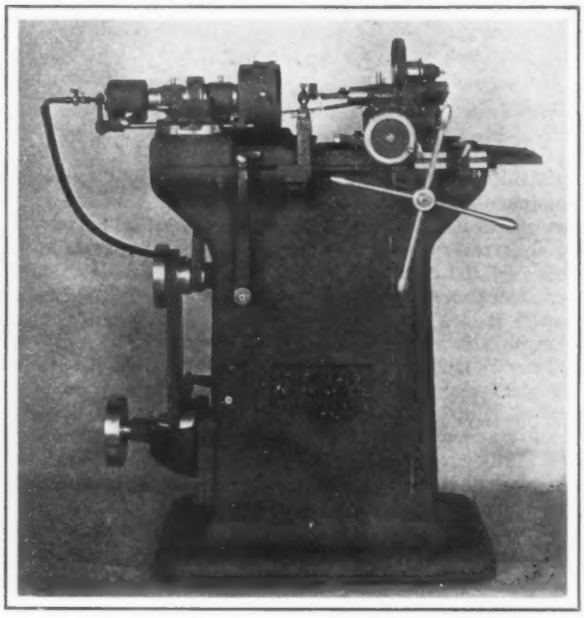
The surplus property division is also offering for sale under sealed proposals 19,863,697 brass rivets, located in warehouses at Boston, bids for which will be opened by the surplus property officer, zone supply office, Boston, at 10 a. m., Sept. 3.

The proposed steel plant at Goderich, Ont., for the Lake Huron Steel Corporation, recently formed with a capital stock of $15,000,000, has now fallen through. Apparently the prices demanded for the property were too high.

Internal Grinding Machine Designed for Small Work

An internal grinding machine for work from ¼ in. to 2 in. in diameter by 4 in. long is announced by the Heald Machine Co., Worcester, Mass. A conveniently located pilot wheel gives hand feed movement to the table. A quick acting collet chuck with a capacity for work from ⅜ in. to 3 in. in diameter is operated by a lever with an adjustable compensating device designed to prevent the work from being distorted by pressure.

The work head is driven by a cross belt through the base from a four-step cone giving three speeds of 161, 292 and 528 r.p.m. It is arranged to swivel and is graduated to 45 deg. or 4 in. taper per foot. The rotation of the work head is automatically stopped and water shut off, when the grinding wheel is drawn from the work, by a friction clutch in the base operated by a lever on the front of the machine. As the table moves to the right a small dog attached to it engages the lever and throws the clutch out. When the operator wishes to resume he pushes the lever back into its vertical position, starting the work head and water. For a machine of this size the work head is unusually large and is bolted directly to the base. It is fitted with bronze bearings that are dust proof and adjustable for wear.



Grinder designed for Work ¼ in. to 2 in. in Diameter by 4 in. Long. The rotation of the work head is automatically stopped and the water shut off when the grinding wheel is drawn from the work

The feed to the cross slide is calibrated to read to 0.00025 in. The feed lever is at the left hand of the cross slide to enable the operator to keep his right hand on the pilot wheel while using the left to feed the slide. The main table has flat and V ways and a positive stop, thus to eliminate danger of over-running when grinding to a shoulder or any given point. An over-head counter-shaft of simple construction is provided having two steel hangers equipped with self-aligning ball bearings, driving pulley, drum for the flexible idler, and tight and loose pulleys to receive power from the main line. A wheel guard automatically covers the wheel as it is drawn from the work, thus to prevent injury to the operator if his hand should slip while plugging the work. The idler pulley is fitted with ball bearings and is of a flexible type so as to keep an even tension on the spindle and counter-shaft belts.

The machine is called No. 85 internal grinder and is said to be particularly adapted for holes smaller than ¾ in. in diameter by 1½ in. long. The actual swing inside the water guard is 6 in. while without the guard it is 10 in.

The machine is equipped with a wheel head having a solid adjustable taper bearing at the wheel end with ball bearings at the pulley end. The wheel heads are made in complete units, each having its own pulley, thereby to secure correct spindle speed. One head is designed whereby different sized quills are inserted into the nose of the spindle. These quills are tapered so that they give a firm grip when put in place with a slight tap on the end of the quill.

British Sale of American Machine Tools

WASHINGTON, Aug. 11.—The British Government is selling some of the American machine tools that played so important a part in the British munitions industry during the war. Consul General Skinner at London has sent to the Bureau of Foreign and Domestic Commerce a list of machine tools offered for sale by the British Government and incidentally he emphasizes the important rôle of the American product. The report says: "As a definite indication of the enormous importance of American contribution to the munitions manufacturing industry, a public announcement in regard to the sale of 'The Finest Collection of Machine Tools Ever Offered for Public Auction' is especially interesting."

In the list issued, it is notable that almost all of the automatic milling machines offered for sale are of American manufacture, and that a number of the more important lathes and grinding machines are likewise of American production. The American machines listed by the British Ministry of Munitions are:

Lathes

Two Le Blond tool room lathes.
Two Whitcomb-Blaisdell tool room lathes.
Milwaukee 11-in. x 10-ft. slide-surfacing and screw-cutting.
Ten Bryant & Symons, screw-correcting.

Turret Lathes

Fifteen Gisholt, with bar and chucking equipment.
No. 3A Warner & Swasey.

Capstan Lathes

Twelve Galtona, 1-in.
Forty-seven Wells, ¾-in.

Automatic Machines

Two Potter & Johnson (No. 6A).
Fifteen Acme, 9/16-in., 4-spindle.
Three New Britain, 1⅝-in., 6-spindle.
Six New Britain, 4-spindle, No. 23.
Eight New Britain, 4-spindle, No. 24.
Eleven Brown & Sharpe, No. 00.

Milling Machines

Nine Ryerson-Owen, No. 2, universal.
Thirty-five Ryerson-Owen, No. 3, universal.
Thirty-six Ryerson-Owen, No. 3, plain.
Three Le Blond, No. 2½, universal.
Three Fox, plain (table 20 x 4 in.).
Seven Pratt & Whitney (No. 12), double spindle profile milling.
Six Pratt & Whitney, automatic, horizontal milling.
Twelve Pratt & Whitney, Lincoln type milling.
Becker 4B vertical.

Grinding Machines

One Cincinnati, plain, 16 x 72 in.
Three Landis, 18 x 68 in. crank.
One Landis, 16 x 68 in. crank.
Pratt & Whitney 14-in. surface grinder.
Four Lumsden, No. 2, plain tool.
Four Lumsden, No. 1, plain tool.
Eight Heald, No. 60 type.

Drilling and Tapping Machines

Twenty Ryerson, 4-ft. radial.
Two Pratt & Whitney, 12-spindle.
Four Garvin No. 2 B. G. tapping machines.

Shaping Machines

Three Milwaukee,, 24-in.

Miscellaneous Machines

Two Pratt & Whitney thread milling machines.
Six 9-in. Almond universal scroll chucks.

O. F. S.

Locomotive Orders

The American Locomotive Co., New York, report export orders from Cuba, India, Japan, Formosa and Peru. Among these orders are: 1 Mogul type, 110,000 lb., to the Pesant Co., Cuba; 1 consolidation type, 97,000 lb., and 10 of 160,000 lb.; 4 switching, 130,000 lb., and 2 prairie type, 114,000 lb., to the United Railways, Havana, Cuba; 1 consolidation type, 125,000 lb., to the American Trading Co. for Cuba. An order comes from the Tata Iron & Steel Co., India, reported in last week's issue, for 8 switching locomotives, 110,000 lb. Four prairie types, 90,000 lb., are ordered by the Imperial Karafuta Government, Japan. The Taiwan Railways, Formosa, have ordered 3 consolidation type, 134,000 lb., and the Cerro de Pasco Railway, Peru, 2 consolidation type, 164,000 lb.

SURPLUS MACHINE TOOLS

List of Government Selling Offices and First Machine List Issued

WASHINGTON, Aug. 12.—The War Department has issued its first catalog of surplus machine tools, representing a value of approximately $2,500,000. These lists have been made up under the inventory and appraisal system described in last week's issue of THE IRON AGE (page 377). The bulletins which comprise this inventory and from which the district salvage boards will make the sales contain the particular class type, size and make of each machine offered; its location by plant, district and bureau; its remaining service value and the selling price. The sales force of each district salvage board is authorized to make sales of all material listed on the bulletins belonging to its bureau, regardless of whether the machines are located in that or another district. Consequently a prospective purchaser may obtain full information concerning all machine tools listed from any of the district salvage boards and make purchases, ragardless of where the machinery he seeks may be located.

While all of the machine tools offered are subject to prior sales, to avoid duplication of sales, a district office having a sale under negotiation immediately requests its bureau in Washington for a serial number covering the materials desired by its prospective buyer. The bureau grants this sales number which serves as a 72-hr. option to the district office and the sale must be consummated within that time limit. The bulletins will be issued at intervals of fifteen days to keep the public posted concerning the sales that have been made as well as the new machines which may be added.

Information concerning any of the tools offered may be obtained from the following offices:

Air Service
Boston, 811 Little Bldg.
Buffalo, 2500 Elmwood Ave.
Chicago, Consumers Bldg.
Dayton, Maxwell Motor Co. (1st St. & B. & O. R. R.)
Detroit, Aviation Gen. Supply Depot, Springwell.
New York, 360 Madison Ave.
San Francisco, 504 Postal Teleg. Bldg.
Washington, 4½ St. & Mo. Ave., N. W.

Chemical Warfare
Baltimore, 311 W. Monument St.
Cleveland, Nela Park.
New York, 19 W. 44th St.
Washington, 7th & B Sts., Building F.

Motor Transport
Baltimore, Camp Holabird, Md.
Chicago, Army Bldg., 220 E. Ohio St.
San Francisco, Fort Mason, Calif.
Washington, 7th & B Streets, Building F.

Ordnance Salvage Board
Baltimore, Columbia Ave. & B. & O. R. R.
Boston, 19 Portland St.
Bridgeport, 945 Main St.
Chicago, 155 E. Superior St.
Cincinnati, Walsh Bldg., 3d & Vine Sts.
Cleveland, 2036 E. 22d St.
Detroit, 828 Rock Bldg.
New York, 1107 Broadway.
Philadelphia, 1710 Market St.
Pittsburgh, Chamber of Commerce Bldg.
Rochester, 82 N. St. Paul St.
St. Louis, 613 Locust St.
Toronto, 608 Royal Bank Bldg.
Washington, 7th & B Streets, Bldg. B.

Purchase, Storage and Traffic Division
Baltimore, Coca Cola Bldg.
Boston, New Army Supply Base, S. Boston.
Chicago, 1819 W. 39th St.
New York, 461 Eighth Ave.
Philadelphia, 21st St. & Oregon Ave.
St. Louis, 2d & Arsenal Sts.
San Francisco, 504 Postal Teleg. Bldg.
Washington, Munitions Bldg., 19th and B Streets.

Signal Corps
Boston, Textile Bldg.
Chicago, Army Bldg., 220 E. Ohio St.
New York, 8-10 Bridge St.
Washington, 18th St. & Va. Ave.

Surplus Property Officer
Baltimore, Coca Cola Bldg.
Boston, 108 Mass. Ave.
Chicago, 1819 W. 39th St.
New York, 109 E. 16th St.
Philadelphia, 21st St. & Oregon Ave.
St. Louis, 2d & Arsenal Sts.
Washington, Munitions Bldg., 19th & B Streets.

The list of machine tools now available for sale covers the following:

Ingersoll-Rand air compressor.

Minneapolis Steel & Machine and two Janches band turning machines.

Giddings & Lewis, Lucas, and Universal boring machines.

Gisholt and Springfield boring mills.

La Pointe and Reed-Prentice broaching machines.

Heale demagnetizer.

Drilling machines of following makes: Pratt-Whitney, Colburn, Fox, National Automatic, Chicago Pneumatic Drill, W. F. & J. Barnes, Mueller, Superior Tool Co., Burke, Allen, Barnes, Champion, Cincinnati Bickford, Hoefer, Leland-Gifford, Niles-Bement-Pond, Sibley, Superior Machine Tool, Wright, Taylor-Fenn, Rockford.

Portable Core Oven for Small Foundries

A portable oven for baking small cores has been brought out by the Ohio Blower Co., Cleveland. It is designed particularly for small foundries, and is expected to prove a convenient addition to the regular core oven equipment of a large foundry for special work or for use when the other ovens are out of repair.

The walls are self-supporting panels set in a substantial frame of heavy angle and bar iron, and are made of 18-gage black sheet steel with an asbestos insulation between, more than an inch in thickness. The oven is equipped with a cast-iron fire box with shaker grates for burning coal or coke, but gas or oil fuel can be used by installing a burner, a hole being provided in the front of the oven for making the pipe connection. The oven has two doors and shelf supports for the adjustment of shelves at 3-in. intervals. Pipe for six shelves is furnished. The oven is mounted on legs so that it can be moved about a foundry floor with an elevating platform truck. The outside height is

The Sheet Steel Walls of This Portable Oven Are Lined with Asbestos More Than 1 In. in Thickness. Shaker grates provide for burning coal or coke, but gas or oil fuel can be used

6 ft. 6 in., width and depth 3 ft., and the inside height 4 ft. 3 in., width and depth 2 ft. 10 in. The weight complete is 1300 lb.

A 3-Foot Muller Type Foundry Mixer

A new size machine for mixing core sand, facing sand and other foundry sand mixtures is announced by the National Engineering Co., 549 West Washington Boulevard, Chicago. This mixer is 3 ft. in diameter, and is constructed along the same lines as the company's 4 ft. and 6 ft. diameter mixers, described in THE IRON AGE, issue of April 25, 1918.

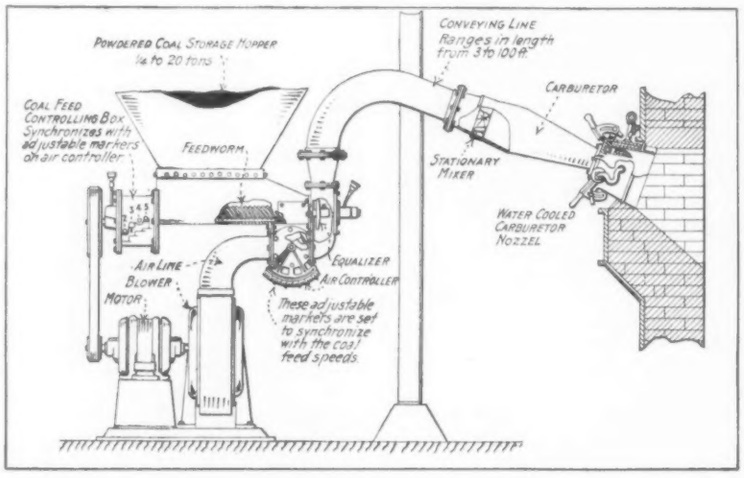
The machine has an automatic discharge and operates by a combination of mullers and plows. This mixer is intended for smaller foundries who do not require the capacity of the large machines, also for larger foundries where it is desired to use more than one machine for sand mixing purposes located in various parts of the foundry.

"Acids and Caustics" is the subject of Bulletin 25 of Safe Practices, published by the National Safety Council, 168 North Michigan Avenue, Chicago. Protective clothing, treatment of burns, apparatus for the protection from fumes, shipping and storage are among the subjects treated.

FOR BURNING POWDERED COAL

Specially Designed Devices for Preventing Packing of Coal—Control of Coal and Air

In the line cut herewith are presented the principal features of the Grindle system of burning powdered coal, as manufactured by the Combustion Economy Corporation, 1901-1911 South Rockwell Street, Chicago. The illustration is from Bulletin No. 2, a recent publication of the corporation, which enumerates the following types of furnaces as adaptable to the use of powdered coal: Annealing, bar heating, billet heating, calcining, drying and baking, forge, nodulizing, open-hearth, ore roasting, piled scrap heating, puddling, melting, rotary cement kilns and steam boilers.



The Grindle System of Burning Powdered Coal. It is distinguished by a feed screw which runs through a wide section of the hopper, preventing packing of the coal. Devices for Synchronizing the Supply of Coal and Air, a New Design of Carburetor and Other Features Which Make Its Operation Reliable in Unskilled Hands

In the Grindle system the tendency of the coal to pack in the storage hopper is overcome by a special design of feed screw enclosed in a cast-iron hopper bottom with a large top opening. It feeds through its entire length and the coal gradually loosens up toward the discharge end instead of packing. At this end of the feed worm is a revolving disk which breaks up any packing which might take place along the feed screw. Packing causes an unsteady feed of coal and a pulsating flame. The coal dust is delivered into a mixing chamber connected to a low pressure air line, where it is mixed with the air for combustion and carried to the carburetor, which may be from 3 to 100 ft. from the coal control.

The air is supplied by a low-pressure blower, in most cases direct connected to a constant speed motor which also drives the coal control. The latter is manipulated by a speed change box which controls the amount of coal fed to the air line. The speed changing device is marked for each speed. The air supply is controlled by a specially designed air gate, also marked to correspond with the number of square inches the gate is open. In addition to this marking there are adjustable markers corresponding to the coal screw speeds, which can be adjusted so that the coal and air are synchronized when each is set on the same number. The markers can be set in accordance with the carbon-dioxide analysis of the stack or by an expert combustion man, after which a laborer can operate successfully and know that he is right.

The coal and air are partly carburized while traveling through the coal carrying line, but to assure perfect carburization it empties into a carburetor in which is placed a stationary fan-like mixer. The outlet end of the carburetor is fan-shaped, which causes the flame to spread across the furnace and to ignite more readily. A dust cloud is ejected from the carburetor through a nozzle of the same shape as the outlet end of the carburetor, and every particle of coal dust being surrounded by the right amount of air for perfect combustion the coal burns in a steady, continuous flame.

The adaptation of powdered coal burners to different kinds of furnaces varies according to the temperature and class of work to be done. Some flames are directed horizontally and others down or upward. The Combustion Economy Corporation have perfected a nozzle which allows the operator to control the flame without interfering with the coal and air supply. It has two plates which can be raised or lowered, directing the flame up or downward, and by bringing the two together the flame can be lengthened.

American Industrial Rights in Germany

WASHINGTON, Aug. 12.—Every American industry is vitally interested in an official announcement which the State Department has just made concerning American interests in industrial property in Germany. This details the method by which American-owned patents in that country, as well as trade marks, may be restored if they have been allowed to lapse during the war.

The statement is signed by Breckinridge Long, third assistant Secretary of State. The official "Synopsis" of this statement follows:

1. The general system of industrial property rights as it existed before the war is restored insofar as suspended by the war, except in the special cases hereafter noted.

2. American-owned industrial property rights in Germany (and the other signatory countries) which have become invalid by reason of failure to pay annual taxes, or meet any formal requirements, may be revalidated.

3. Failure to 'work' in Germany (and the other signatory countries) during the war is waived as a cause of forfeiture of industrial property rights, and further this period in which foreign working of inventions, etc., is not compulsory is extended to two years after the war.

4. Americans who were prevented by the war from patenting their inventions, registering their trade marks, etc., in Germany (or other signatory countries) may do so now.

5. Measures taken during the war by the United States by way of licensing or liquidating German patents are recognized as valid and remain effective.

6. The right of the United States to impose conditions on German-owned industrial property if in future the national defense or public interest should require it is reserved by the United States and recognized by Germany.

7. The liability of the United States or those acting for it for infringements incident to the prosecution of the war is waived by Germany for itself and its nationals.

8. License contract rights and rights of Americans to sue for infringements committed during the war by Germany or Germans are not surrendered by the treaty.

The Small Arms Division, Ordnance Department, United States Army, invites inventors to submit designs of semi-automatic shoulder rifles, in accordance with recent specifications prepared which outline requirements such arm should possess in order to be acceptable as a service weapon. Copies of these specifications may be obtained by application to the Chief of the Small Arms Division, 6th and B streets, Washington, D. C.

IRON ORE AND IRON OUTPUT

Decrease in Output in 1918 of 7.5 Per Cent, but Increase in Value

Complete statistics of iron-ore mining in 1918, compiled under the direction of E. F. Burchard of the United States Geological Survey, show a decrease in output and in shipments but an increase in value. The iron ore mined in the United States in 1918, exclusive of that containing 5 per cent or more of manganese, amounted to 69,658,278 gross tons, as compared with 75,288,851 tons in 1917, a decrease of 7.5 per cent, according to statistics compiled by the survey.

The quantity of ore shipped from the mines in 1918 was 72,021,202 gross tons, valued at $244,368,147, compared with 75,573,207 tons, valued at $238,260,444, in 1917, a decrease in quantity of 4.7 per cent, but an increase in value of 2.6 per cent. The average selling value of the ore per gross ton at the mines for the whole United States in 1918 was $3.39, compared with $3.15 in 1917. The stocks of iron ore at the mines, mainly in Michigan and Minnesota, amounted at the close of 1918 to 8,471,507 gross tons, compared with 11,003,843 tons in 1917, a decrease of about 23 per cent.

Iron Ore Mined in the United States in 1917 and 1918, in Gross Tons

State	1917	1918	Per Cent of Change in 1918
Minnesota	44,595,232	41,953,969	− 5.9
Michigan	17,868,601	16,899,341	− 5.4
Alabama	7,037,707	5,754,624	− 18.2
Wisconsin	1,202,235	1,089,351	− 9.4
New York	1,304,317	906,179	− 30.5
Pennsylvania	546,700	522,600	− 4.4
Wyoming	543,846	447,884	− 1.1
New Jersey	489,943	423,525	− 13.6
Virginia	469,903	414,048	− 11.9
Tennessee	508,529	408,954	− 19.6
New Mexico	237,221	268,666	+ 13.3
Georgia	226,630	264,602	+ 16.8
North Carolina	90,997	108,332	+ 19.1
Missouri	38,908	72,708	+ 86.9
Utah	48,058	52,722	+ 9.7
Nevada	1,010	20,303	+1910.2
Connecticut	(a)	12,130	(b)
Massachusetts	10,000	8,450	− 15.5
Maryland	11,830	8,081	− 31.7
Colorado	(a)	7,850	(b)
Iowa	22,612	7,052	− 68.8
California	2,207	3,107	+ 40.8
Other states (c)	27,693	1,600	(b) 17.0
Montana	(a)	1,415	(b)
Idaho	.....	785	.....
West Virginia	4,632	.....	.....
Arkansas	40	.....	.....
	75,288,851	69,658,278	− 7.5

(a) Included with "Other states."
(b) Decreases in Colorado, Connecticut and Montana included in "Other states."
(c) 1917—Colorado, Connecticut and Montana. 1918—Texas and Washington.

Iron ore was mined from 458 mines in 26 states in 1918, compared with 452 mines in 25 states in 1917. Of these states, California, Idaho, Montana, Nevada, Utah and Washington produced iron ores chiefly for metallurgic flux and a small part of the production in Colorado and Michigan was used for flux. One mine in Virginia reported a small quantity of iron ore used in the manufacture of hydrogen gas. The other iron ore mined was used mainly in blast furnaces, except small quantities from Georgia, Michigan, New York and Wisconsin used for paint. The rank of the three states producing the largest quantity of iron ore—Minnesota, Michigan, Alabama—remained unchanged in 1918. Minnesota produced more iron ore in 1918 than all the rest of the states together, furnishing a little more than 60 per cent of the total for the United States.

Lake Superior Iron Ore Ranges: All the ranges in the Lake Superior district mined less iron ore in 1918 than in 1917, the smallest decrease, 0.6 per cent, having been in the Gogebic range and the largest, 19.5 per cent, in the Vermilion range. The Mesaba range produced 65 per cent of the entire output of the Lake Superior district and 56 per cent of the total output of the United States.

The Lake Superior district, comprising all the mines in Minnesota and Michigan and those in northern Wisconsin, mined nearly 86 per cent of the total ore produced in 1918, and the Birmingham, Ala., district a little more than 7 per cent. Every district except the Chattanooga showed a decrease in 1918.

Iron Ore Mined in the United States, by Mining Districts and Varieties, in 1918, in Gross Tons

District	Hematite	Brown Ore	Magnetite	Total	Per Cent of Change, 1918
Lake Superior (b)	59,779,794	.....	.....	59,779,794	− 5.8
Birmingham	4,763,057	344,332	.....	5,107,389	−17.5
Chattanooga	516,259	309,268	.....	825,527	+ .5
Adirondack	.....	.....	762,029	762,029	−30.7
Northern New Jersey and southeastern New York	.....	.....	523,862	523,862	−18.4
Other districts	835,599	960,244	863,834	2,659,677	−13.0
	65,894,709	1,613,844	2,149,725	69,658,278	− 7.5

(b) Includes only those mines in Wisconsin which are in the true Lake Superior district.

The imports of iron ore in 1918, according to the Survey, amounted to 787,468 gross tons, valued at $3,464,304, compared with 971,663 tons, valued at $3,655,392, in 1917, and the exports in 1918 were 1,256,383 gross tons valued at $5,535,090, compared with 1,132,313 tons, valued at $4,464,111, in 1917. All the ore exported in 1918 went to Canada. The imports of pig iron (chiefly ferromanganese and ferrosilicon) were 34,711 gross tons in 1918, compared with 76,786 tons in 1917, and the exports of pig iron, including a minor quantity of ferromanganese and ferrosilicon, were 269,575 gross tons in 1918, compared with 656,220 tons in 1917.

Pig Iron

The quantity of pig iron exclusive of ferroalloys, sold or used in 1918, according to reports of producers to the Geological Survey, amounted to 38,230,440 gross tons, valued f.o.b. at the furnaces at $1,180,759,565, compared with 38,612,546 tons, valued at $1,053,785,975, in 1917, a decrease in quantity of 382,106 tons, or 1 per cent, and an increase in value of $126,973,590, or 12 per cent. The average price per ton at furnaces in 1918, as reported to the survey, was $30.89, compared with $27.29 in 1917, an increase of 13 per cent.

Ferroalloys

The shipments of ferroalloys of all classes in 1918, as reported to the survey, amounted to 750,868 gross tons, valued at $115,433,943, as compared with 634,021 tons, valued at $83,731,724 in 1917, an increase in quantity of 116,847 tons, or 18 per cent, and in value of $31,702,219, or 38 per cent. These shipments do not include a considerable quantity of ferroalloys manufactured in electric furnaces. The reported shipments of 50 per cent ferrosilicon in 1918 were 30,617 gross tons, valued at $4,458,626.

Iron Ore (a) Mined in the Lake Superior District (b), by Ranges, in 1917 and 1918, in Gross Tons

Range	1917	1918	Per Cent of Change in 1918
Marquette (Michigan)	4,638,374	3,946,554	−14.9
Menominee (Michigan and Wisconsin)	6,366,483	6,041,637	− 5.1
Gogebic (Michigan and Wisconsin)	7,881,232	7,837,634	− .6
Vermilion (Minnesota)	1,481,301	1,192,677	−19.5
Mesabi (Minnesota)	41,127,323	39,055,977	− 5.0
Cuyuna (Minnesota)	1,986,608	1,705,315	−14.2
	63,481,321	59,779,794	− 5.8

(a) Exclusive of ore containing 5 per cent or more of manganese.
(b) Includes only those mines in Wisconsin which are in the true Lake Superior district.

THE LABOR SITUATION

Little Progress Made in Washington—Overreaching of the Railroad Demands

WASHINGTON, Aug. 12.—Even President Wilson's address has done little to clarify the complicated industrial situation, and strikes and labor unrest seem to be increasing rather than disappearing. The most significant feature of the week was the fact that the railroad brotherhood representatives, who had come to Washington to demand increased wages and the turning over of the railroads to a joint Government and union control, withdrew their attempt to dictate legislation by strike threats.

Members of both houses of Congress and both parties vigorously resented this assault upon their independence, and Senators Thomas of Colorado and Myers of Montana, both Democrats, made vigorous speeches of denunciation. Senator Thomas denounced the proceeding as Bolshevism, and Senator Myers branded it as an attempt to sovietize the railroads by means of threats.

Thereupon the leaders of the brotherhoods announced that they had had no intention of attempting to secure the passage of the Sims bill, embodying the Plumb plan, by means of these threats, and that they were intended solely to bring down the high cost of living, or raise the railroad men's wages.

President Wilson offered Congress no solution for the railroad problem, but announced his willingness to "confer with anybody who knew what he was talking about." This was taken to suggest a general industrial conference, such as had been repeatedly discussed during the President's absence in France. But nothing definite has been done.

The Department of Labor has been trying to conciliate strikes and labor troubles throughout the country, but with less success than usual. Its records show that more than 100,000 workers are now out of employment on account of labor troubles. The department, however, does not include the railroad shopmen's strike, in which it has taken no part as a conciliator. President Wilson's ultimatum to these strikers that they must return to work before their demands can be discussed and that they must deal with the Government through their international officers aroused much interest. On one hand, all of the strikers did not resume work despite the threat. On the other, it was noted with interest that the President committed the Government to a policy of dealing with international union officers as against local representatives.

Congressional action made little progress during the week, the House Committee on Foreign and Interstate Commerce continuing its hearings on the railroad situation.

O. F. S.

Ignoring an Arbitration Award

WORCESTER, MASS., Aug. 11—The case of the Worcester Gas Light Co., Worcester, Mass., and its employees is being watched with deep interest because of its latest development, which involves the casting aside by the workers of the decision of the State Board of Conciliation and Arbitration. The men were not given all they asked for, taking them as a whole; some got more, while others got less. They returned to work under the new wage scale and with a 48-hr. week, tacitly accepting the award. Last week their committee submitted what they termed a "working agreement," which set aside the award in important particulars as relating to overtime pay. The State board had awarded double time for holidays and time and a half for all overtime above the 48-hr. week. The new demand would provide time and a half pay for Sunday work, and for all time worked in excess of 8 hrs. on any individual day for the first 4 hrs. and double time for hours in excess of 12 hrs. per day. As gas making is a seven days vocation, the distinction as to Sunday is an important one. But the really important side to this aspect of the situation is that the decision of the State board was ignored.

This "working agreement" also provides that all gas workers shall be employed by the shop stewards or business representatives of the union "and if these shop stewards are not able to furnish the men required within 24 hrs. after receiving notice from the company the company may hire any man who is eligible for membership under the rules of the union, and if any man so employed by the company shall not become a member of the union within 10 days after being so employed he shall be discharged by the company."

To quote still further: "No machinery shall be installed by the company if the same has been built by firms who are considered unfair to union labor or under conditions that are unfair to union labor. The company agrees that all iron castings used by the company shall be made in shops that are considered fair by the members of the iron molders' union." A molders' strike is on in Worcester.

The company naturally declined to sign an agreement of this sort and the State Board of Conciliation and Arbitration, being informed of conditions, has reopened the case.

Labor Notes

Following a rejection of new wage scale and refusal to recognize the union, between 4000 and 5000 employees of the Standard Steel Car Co. and the Forged Steel Wheel Co., Butler, Pa., are on strike.

The Reed-Prince Mfg. Co., bolt maker, Worcester, Mass., has reduced the working schedule from a 55-hr. week to 50 hr. at the same wage. Piece workers have received a 9 per cent. increase. This action follows similar changes by other Worcester manufacturers.

Some of the Worcester, Mass., foundries affected by the strike of the molders have resumed operations. These are foundries supplying machine shops with rough castings. The Coppus Engineering & Equipment Co. is running with independent molders. Others are: Rice, Barton & Fales, the Reed Prentice Co., the Whitcomb-Blaisdell Machine Tool Co., the Worcester Polytechnic Institute and the Holyoke Machine Co. The Pond Machine & Iron Co. and the Star and Standard foundries are still closed.

The Hendey Machine Co., Torrington, Conn., shut down the entire plant for a week to give all employees a vacation.

Employees of the Stiffel-Freeman Safe Works, Lititz, Pa., who declared a strike on July 31, with demand for 10 per cent wage increase, returned to the plant early in August, pending action at a forthcoming meeting of the directors of the company. The men also ask for reduced working hours.

The Eagle Lock Co., Terryville, Conn., has awarded a contract to the Westinghouse, Church, Kerr Co., New York, for the construction of 30 one-family houses for employees at the works.

Machinists at the plant of the Glamorgan Pipe & Foundry Co., Lynchburg, Va., declared a strike Aug. 4, for recognition of their recently formed union. Molders at the plant declared a strike a short time ago for reduced working hours.

About 3,000 employees at the plant of the Chester Shipbuilding Co., Chester, Pa., who declared a strike Aug. 4, on account of the dismissal of one of the counters, a union man, at the plant, returned to work on Aug. 6, with the company agreeing to reinstate the workman, but with understanding that a system heretofore employed in counting should be regulated.

The local machinists' union, Waynesboro, Pa., has issued a letter to manufacturing plants in the city, asking a 44-hr. week with 50-hrs.' pay.

The strike at the works of the Splitdorf Electrical Co., Newark, N. J., including about 300 tool makers and machinists, was settled Aug. 4, with adjustment of differences. The tool makers walked out last March as a result of the demoting of a foreman; on June 18, other machinists declared a strike for a general revision of wage scale.

The Waterloo Gasoline Engine Co., Waterloo, Iowa, has entered suit for damages in the amount of $400,000 against the International Machinists Union, its organ-

izers, officers and members, for alleged breach of contract on the part of employees at the plant. It is held that there was conspiracy to unionize the works, change the hours and terms of labor and working conditions.

The Garford Motor Truck Co. and the East Iron & Machine Co., Lima, Ohio, have voluntarily granted their employees a basic 8-hr. day, a 12½ per cent increase in wages and time and a half for over-time, Sundays and holidays.

Foodstuffs obtained by the city of Youngstown from the Government's surplus will be distributed in part through the industrial plants, the work being handled by the welfare departments.

Large numbers of Rumanians, employed in the iron and steel industry in the Mahoning Valley, are seeking passports to return to their native land. In three days 500 passports were issued in Youngstown and Warren, Ohio.

The Industrial Works, largest employer of labor in Bay City, Mich., has closed down, owing to a strike of about 200 molders, which disrupted the work of the plant.

The Blue Bird Mfg. Co., maker of washing machines, with two factories in St. Louis, filed suit Aug. 7 in the United States District Court against the Amalgamated Sheet Metal Workers' Industrial Alliance, Local Union No. 386 and Painters Local Union No. 980 and members of the unions, to restrain interference with the business and employes. It has conducted an open shop without discrimination. Last week the unions sought to force the company to employ only union men. The case will be heard August 27.

The Litchfield, Ill., plant of the American Radiator Co. has adopted a minimum wage scale for any kind of labor of $5 a day, the maximum $7 a day for eight hours. The Litchfield plan, it is said, is to be adopted by all factories of the American Radiator Co.

While outcroppings of labor troubles in metal working industries in Milwaukee and other cities in Wisconsin in the first ten days of August have been unusually large, settlement has been effected in a majority of cases without the loss of more than a day's time. Fifty machinists employed by the T. L. Smith Co. struck Aug. 5 for a 10c. increase in the hourly wage, and returned Aug. 6 when an advance of 7½c. was granted. Sixty toolmakers at the Briggs & Stratton Co. walked out for a day to enforce a demand for a 10c. increase, which was compromised at 5c. At the A. J. Lindeman-Hoverson Co., 65 sheet metal workers struck for a wage increase and to support union metal polishers who have been out for several months. Between 150 and 200 molders and core-makers in seven foundries at Oshkosh, Wis., walked out Aug. 1 to enforce a demand of a minimum wage of 80c. an hr. and an 8-hr. day. Forty-eight machinists, tinsmiths, blacksmiths and helpers at the plant of the Eagle Tractor Co., Appleton, Wis., walked out in protest against the proposition to supplant the hourly wage basis with the piece-work system. The strike of sheet metal workers at the Modine Mfg. Co., Racine, Wis., automobile, truck and tractor radiators, has been settled after the men were out two weeks.

Judge Francis E. Baker, of the Federal Court, sitting at Hammond, Ind., continued a temporary restraining order against four striking machinists of the Standard Steel Car Co., but dismissed it against thirty of the strikers accused of using physical coercion. The company had asked for a permanent injunction against 2000 strikers asking for a closed shop and higher wages. The court said the Mayor and Police Chief were responsible for order at the plant and he would grant no injunction until it was shown that they were powerless to handle the situation. The court asked for specific instead of collective acts of interference and this charge was proved against four of the strikers.

Strikers have returned to work at the plant of the Crawfordsville Wire & Nail Co., Crawfordsville, Ind., the company agreeing to an advance of common laborers from $2.90 to $3.50 a day, with an advance also for skilled labor.

A strike is on at the plant of the Gary Screw & Bolt Works, caused by the discharge of high-priced machinists.

The Blount Plow Co., Evansville, Ind., put into effect Aug. 1 a 5 per cent increase in wages and a similar increase will be effective Sept. 1.

The molders employed at the foundry of the L. W. Pond Foundry & Machine Co., who have been on strike for three months, have returned to work, some arrangement having been arrived at between the owners and the workers. The molders' union does not claim that the strike was won by them; the situation in the plant is not very different from what it was previous to the beginning of the strike, which has been in progress in most of the Worcester foundries, and is still in progress in all where the men went out with the exception of the Pond works.

A Reduced Freight Rate from San Francisco

WASHINGTON, Aug. 12.—The Interstate Commerce Commission has ordered the Railroad Administration to establish a rate on angle iron in single carload lots from San Francisco to Rockford, Ill., "not in excess of $1.12½ per 100 lb." This rate is established as the result of a complaint by the Joseph D. Bell Co., which manufactures metal parts for davenports at San Francisco and Rockford. The company complained that it was compelled to pay $3 per 100 lb. on all shipments between these points and as a result were forced to give up shipping angle iron from San Francisco to Rockford. In ordering the institution of the new rate and directing payment of reparation for the previous charge the Interstate Commerce Commission said, in substance:

> At the time the shipment moved there was in effect in the reverse direction, or from Rockford to San Francisco, a rate of 80 cents, minimum 40,000 lb., which has been successively increased, subject to the same minimum weight, to 90 cents, 95 cents, and at present $1.19. There was also in effect on the articles covered by the same tariff item a rate of 65 cents, when the minimum was 50,000 instead of 40,000 lb., which rate, subject to the same minimum weight, has been successively increased to 75 cents, 90 cents, and at present $1.12½. There was further in effect a rate of 55 cents on "iron and steel, articles of, viz: Bar (including corrugated and twisted bars); shafting, plain; slab (up to and including six inches in width); rod (threaded or not threaded); hoop or band; min. wt. 80,000 lb." This rate of 55 cents, subject to the same minimum weight of 80,000 lb., has been successively increased to 65 cents, 90 cents, and at present $1.12½.

The Commission also, in ordering reparation of $35.60 and interest, announced that although it could order reparation of excessive freight charges, it had no power to order refund of the war tax paid on the excessive amount. This decision was announced in the case of Walter A. Zelnicker Supply Co. against the Oregon Short Line Railroad Co. In that issue it ordered reparation of $234.34 freight charges on a shipment of three carloads of scrap iron shipped from Milner and Gooding, Idaho, to Kansas City, Mo.

O. F. S.

Changes have been made in the name and personnel of the Peck & Young Mfg. Co., coil springs and screw machine products, Forestville, Conn., the company to be known hereafter as the Humason Mfg. Co. W. L. Humason, president of the old company, becomes chairman; L. C. Humason continues as secretary and treasurer. Other new officers are: President, K. D. Russell, treasurer American Hardware Corporation, New Britain, Conn.; vice-presidents, J. M. Carney, manager Hartford Automotive Parts Co., Hartford, Conn., and S. M. Stone, vice-president Colt's Patent Fire Arms Mfg. Co., Hartford. The directorate, which is not changed in personnel, is composed of the officers with the addition of A. W. Bowman, vice-president Atlantic Screw Works, Hartford, and W. E. Fogg, contractor, Bristol, Conn. The plant is being increased to more than double its present capacity and the company is entering into the manufacture of automotive parts.

CORRESPONDENCE

Education a Plant Efficiency Factor

To the Editor: The article on "Education a Plant Efficiency Factor," by J. K. Lamoree, in THE IRON AGE of July 31 was very timely. Education in industrial plants is one of the most needed factors in the development of a more economical production. We should have not only night schools, but part time day schools. But best of all good "trade schools" where good workers are made into better workers. Small factories will be benefited by them as well as the large industries. Operations like drilling, milling, turning, press and screw machine work are done in a large percentage of our factories and these trade schools could teach these operations so we could get increased production in our factories. They would teach the workers to do exact work which would eliminate a good part of spoiled production. In the mechanical line our greatest saving in production will be made. This will and must be done to replace the coming shortage of labor and to enable us to compete in all foreign markets. Our new large merchant marine must be kept busy with American-made products.

Another aid to increased production is premium rate or piece work. It enables the good and industrious worker to get a better remuneration for his services and I always find him more contented under such conditions of wage payment. This results in considerable less labor turnover, which reduces one of the largest and costly items in production. While the cost of supervision is larger under a premium or piece work system, the increased production pays for this several times over.

J. J. SIEFEN,
Supt., Lux Clock Mfg. Co.

Defective Forgings

To the Editor: The article by O. A. Knight in THE IRON AGE, June 26, 1919, on "Defective Forgings" has raised an important question as to forging practice and its effect on gun forgings. In the second paragraph he states that finishing forgings at too high a temperature results in evil effects too well known to merit discussion. The literature of the subject available to the writer deals with the effect of finishing temperatures on material that is not subjected to heat treatment. Additional information is desired as to the effect of high finishing temperatures on material that is subsequently annealed, quenched and drawn. This treatment is intended to obliterate the effect of the flow of metal in forging with the desire to secure as good properties as possible in the direction perpendicular to the direction of elongation in forging.

Tests from gun forgings are all tangential; as the bursting stresses caused by the firing of the gun are approximately twice greater in the circumferential than in the longitudinal direction. It is the intention in the treatment to make the metal as nearly homogeneous as possible and to avoid weakness of the steel in the direction in which it sustains the maximum stresses.

It is for the purpose of determining to what extent high finishing temperatures result in inferior physical tests in heat treating forgings that data are desired as to particular cases in which this action has occurred. It is thought that, if there is a serious deficiency in the physical properties of the gun forgings that have been forged at a high temperature, it may be advisable to make a change in the method of forging guns. Defects due to forging practice that have been regarded as being most troublesome are caused in a great part by forging at too low a temperature, resulting in a structure which persists after heat treatment and results in a low ratio of the properties of tangential as compared to longitudinal bars. Specific information is desired from Mr. Knight or others who have investigated the subject as to the results of finishing forgings at temperatures up to 1150 deg. C., and the effect on the treated forging which has resulted from heating forgings to forging temperature without subsequent work.

Various circumstances effect the heating and forging of guns that are forged in the manner cited by Mr. Knight. This is the common method of making gun forgings. One end of an ingot is heated in a furnace, the other end being allowed to project from the door in order to afford a grip for the chuck by which the ingot is handled. One end of the gun is forged to size and an intermediate portion partially forged. The unheated end of the ingot is then introduced into the furnace, allowing the finished portion to project from the door to serve as a hold for the chuck. The other half of the ingot is then forged and discard cropped. The middle portion of the forging which is finished to approximate size in the first operation must support the weight of the unfinished portion, which usually includes the top discard and consequently contains at least half of the weight of the original ingot.

It is impractical on this account to heat the finished intermediate portion to the full forging temperature. It often happens that the size and capacity of the furnace make it difficult to heat the portion adjacent to that which projects through the door to as high a temperature as is desired. Serious defects are sometimes caused in this intermediate section by forging the metal at too low a temperature.

It is particularly desired to obtain information as to the effects on treated forgings that can be ascribed definitely to too high a temperature in this portion of the forging. Information that will clear up these points will be of great value in the designing and production of guns and similar articles.

C. E. MARGERUM,
Metallurgist, United States Navy Ordnance Plant.
South Charleston, W. Va., July 17.

To the Editor: In reply to the inquiries made by C. E. Margerum, metallurgist, U. S. Naval Ordnance Plant, South Charleston, W. Va., concerning my article on "Defective Forgings" which was published in THE IRON AGE, June 26, I beg to submit the following:

I am glad to learn that the small amount of information contained in my article was sufficient to bring about discussion and I sincerely hope that others who have had experience along these lines will contribute freely in order that as much light may be thrown upon the subject as possible. The observations which I made were too limited in number to permit of many conclusions regarding such an important question as the forging of parts so expensive as heavy guns, but certain of them pointed unmistakably to the evil effects which I mentioned in the original paper.

Mr. Margerum desires more information concerning the effect of high finishing temperatures on forgings which are subsequently heat treated. Along this particular line I have had considerable experience and shall be glad to contribute anything that may be helpful to others. My experience has been that the refinement of the coarse grain structure produced by excessively over-heating steel is more difficult than any steel treating operation except the refining of the "ingotism" structure of cast steel.

Let us consider for a moment the changes which must take place in converting such coarsely crystalline structures to fine ones. In refining the structure of cast steel by annealing we find the changes which take place involve the maximum amount of migration and diffusion of constituents. Theoretically the coarse structure of cast steel can be refined by heating slightly above the upper portion of the critical range. Practically this is not so easily affected since at this temperature the steel is too viscous to allow the constituents readily to rearrange themselves. Therefore higher temperature (about 925 or 950 deg. C.) are employed and at such temperatures the viscosity of the steel is reduced to a point which permits the migration and diffusion of constituents to take place quite rapidly.

The length of time required is, therefore, materially shortened and the original ingotism more completely broken up, although the final resulting structure is somewhat coarser than if annealed at a lower tempera-

ture were it possible to do so and at the same time eliminate the original ingotism.

In the cast condition the grains are very large and excess ferrite is found in large quantities around the grain boundaries and in the cleavage planes. For this to be rearranged into smaller grains with correspondingly smaller quantities of ferrite around the grain boundaries requires the migration of constituents above referred to. The coarser the structure, the greater will be the amount of migration and diffusion of constituents required to bring about complete grain refinement. This requires a greater length of time at a given temperature, or a higher temperature for its accomplishment.

The ideal way to refine such coarsely crystalline structures as cast steel would be to destroy the original ingotism by annealing at a temperature of say 1000 deg. C. followed by air chilling to below the critical range, and then complete the refinement by annealing slightly above the critical range. To refine the original "ingotism" structure completely by annealing only slightly above the critical range is practically impossible on account of the rigidity of the steel at this temperature.

Now, in the light of what has been said above, let us consider the forging which has had some portion (the central portion as discussed in my original paper for instance) exposed to some 1250 to 1300 deg. C. for several hours after which it is not forged. Such a heating will develop a very large grain, approaching ingotism in character, which will only be broken up by heat treatment especially adopted to do so. The heat treatment ordinarily given gun forgings will not obliterate entirely this structure and the ductility under impact will be low as well as the resistance to dynamic stresses. A very drastic heat treatment would be required to refine such a structure and impart the desired physical properties.

I have in mind one large concern which heat-treated gun forgings with a high degree of success during the war and its method, I believe would suffice to eliminate the coarse structure under discussion. This concern treated its forgings as follows:

When the forging was finished it was placeed in the annealing furnace before it became entirely cold and was heated to 2000 deg. Fahr. for some time, followed by air cooling until black, after which it was heated to 1600 deg. Fahr. for sometime and again air cooled until black when it was heated to 1400 deg. Fahr. for some time and furnace cooled. After this treatment two buttons were taken from either end of each forging and submitted for microscopic examination. If the metal was free from non-metallic inclusions and if the structures showed the proper grain refinement, the forgings were then water quenched from 1460 deg. Fahr. and drawn according to the carbon content.

On the other hand if the metal was found to be dirty, additional buttons were taken for microscopic examination, these being taken farther in away from the ends. If the metal was all found to be dirty, it was rejected. If found clean but of too coarse structure it was re-annealed. Only first class material was ever quenched and drawn.

This method of treatment and examination has many points in its favor, practically all of the forgings pass the required physical tests after the first heat treatment. This is a great saving on re-treatment and re-testing, besides if the metal is carefully examined after the above annealing and found to possess a good clean structure, experience has shown that it is practically sure to pass after first treatment; consequently in rough machining it can be turned almost to size which minimizes the machining after the quenching and drawing.

In ordinary practice where such examinations and precautions are not taken it is impossible to rough machine so close to size before the first treatment, lest there will not be enough metal left in case re-treatment is necessary which treatment will require a certain additional machining to eliminate the surface metal. The above mentioned special annealing practice I believe will eliminate the worst of over-heated structures, but of course this practice is not universal.

In replying to Mr. Margerum's request for information regarding the possible evil effects of finishing forgings at temperatures as high as 1150 deg. C. I believe that if the proper amount of reduction has been made and if the forging operation which is discontinued at 1150 deg. C. is a thorough one, there should be no trouble provided the forgings are properly annealed previous to being heated for quenching. This annealing, however, is very important.

The operation which I am convinced has been the cause of failures is that pointed out in my original article of the central portion, after having been reduced to finished size, being exposed to a temperature of some 1250 deg. C. (and I have seen higher when furnace operators were careless or were urged for "production") for several hours, during which time the as yet unforged portion of the ingot was being brought to the forging temperature. This develops a very coarse grain which is not completely refined if the forging is given an ordinary anneal at say 950 deg. C.

In this connection I recall an instance when a certain small forging, averaging 2 in. in thickness, was by mistake excessively overheated. A portion of this was submitted to me for microscopic examination in order to determine whether the metal was "burnt" or over heated. It was found to be overheated very badly and the grains were almost as large and of a similar nature as found in unannealed cast steel. I ran several experiments on this material to determine the most effective method of refining the structure and imparting the desired physical properties to the steel.

Annealing a specimen 1 x 1 x 1 in. in a laboratory furnace 2 hr. at 900 deg. C. produced a marked change in the structure but traces of the original coarse structure were still plainly in evidence. I later found that heating 2 hr. at 1050 deg. C. followed by cooling below the critical range and then heating to 900 deg. C. and holding at that temperature for 2 hr. followed by furnace cooling gave a very well refined grain and subsequent heat treatment on this basis gave the required physical properties. In large forgings more trouble would be encountered in refining the grain since we have greater masses of steel to thoroughly heat.

The difficulty pointed out by Mr. Margerum of having the central portion insufficiently heated and forged at too low a temperature did not come under my observation since the furnaces which were used were sufficiently deep to heat thoroughly over half the length of the finished forging at a time. My observations, however, were made on the 155-mm. gun and the 240-mm. howitzer, whereas, I presume the guns referred to by Mr. Margerum were the 12, 14 and 16-in. Navy guns of much greater length. I should think his difficulty could be overcome even though it may be impossible to lengthen his furnaces by having doors cut in the back of the furnaces so a long forging can be run through and have the central portion in the hot zone of the furnace when necessary.

I hope that the few simple suggestions which I have herein offered will be found helpful to those engaged in heavy ordnance production and furthermore that this discussion may induce some one who has had wider experience than I to contribute information which will make easier the many difficult operations involved in the manufacture of large calibre guns.

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Examinations for research engineer in metallurgy, salary $2,800 to $3,200; chief metallurgist, $4,500 to $5,000, and assistant chief metallurgist, $3,600 to $4,500, are announced by the United States Civil Service Commission to fill vacancies in the Ordnance Department at Large of the War Department. Applicants for the position of research engineer should apply for form 2118, and for metallurgists, form 1312, stating the title of examination desired to the Civil Service Commission at Washington, or to the secretary of the United States Civil Service Board at the nearest Custom House.

BOOK REVIEWS

Trading with the Far East.—Compiled for the Irving National Bank, New York. Pages 261, 5¼ x 8 in.; illustrated.

This book, designed by the Irving National Bank to foster export trade, is a companion volume to Trading with Latin America, published by the same bank, and it is written and illustrated along the same lines except that it treats of the particular problems that exist in Oriental trade. The main topics are How to Trade in the Orient, Policies, Methods, Advertising, Credits, Financing, Documents and Deliveries. The preface emphasizes that trading with the Far East involves problems of great magnitude, springing from distance, strange customs, different characteristics, unfamilar points of view, new languages and dialects by the score, while the general machinery of business and commerce is unusual and often complicated. The conditions that must be faced are treated in detail. Of particular value from a practical point of view are the reproduction of sample export documents which must be correctly handled. The proper filling in of these blanks and reports has puzzled more than one person interested in foreign trade, and the value of the reproductions is that they enable one to visualize the methods which must be employed.

Abrasives and Abrasive Wheels. By Fred B. Jacobs. Pages 340, 5¼ x 8¼ in.; numerous illustrations. Published by the Norman W. Henley Publishing Co., 2 West Forty-fifth Street, New York.

This is a handbook on the manufacture and practical use of abrasives, abrasive wheels and grinding operations, presented so as to avoid theory as much as possible and to give only practical information. The subject of grits, grades and bonds, which is so perplexing to the average shopman, is thoroughly explained, together with other valuable data concerning the physical and chemical nature of abrasives in general. The procedure in the testing of grinding wheels for efficiency is treated at length and data is given.

In addition to these subjects others discussed include natural and artificial abrasives, production and preparation of abrasives, sharpening and grinding stones and wheels, truing, rebushing and installing wheels, safety devices and dust-collecting systems, surface grinding, external and internal grinding.

The book is valuable in giving mechanics the necessary information to make a more intelligent use of abrasives and will supply the shop superintendent with some efficiency-increasing facts.

The Instructor, the Man and the Job. By Charles R. Allen. Pages 372, 7¾ x 5¼ in. Published by J. B. Lippincott Co., Philadelphia.

This book is an effort to help industrial plants to build up a department for the instruction of workers, both skilled and unskilled, with a by-product in an increase of production and a decrease of discontent. The author has been in charge of industrial training of boys and men for the Massachusets Board of Education and superintendent of instructor training for the Emergency Fleet Corporation.

The handbook, as it is intended to be, takes up in detail the question of the best methods to pursue in fitting the man into the job, whether the work is highly skilled labor or only semi-skilled. He contends that the absorption method, prevailing in so many concerns, is wasteful and should be supplanted by careful instruction, so that the man may quickly become an efficient producer, instead of becoming discouraged by his inability to rapidly grasp the work and then leaving.

Divided into nine parts with chapter divisions and an appendix, the work carefully analyzes the knowledge necessary to the workman and the average difficulties he encounters in entering upon his duties, regardless of the line of work. There is also an analysis of trade knowledge that every learner must be taught. A classification in general is given, with suggestions as to the order of teaching, and how to arouse the interest of the man being instructed. Parts VIII and IX deal almost entirely with the building up of an efficient instruction organization for any industrial concern; the type of instructor; the administration department; the keeping of records, and the training of men as instructors.

The Turnover of Factory Labor. By Sumner H. Slichter. Pages 442, 6 x 8 in. Published by D. Appleton & Co., New York.

As the title suggests, this book deals with factory labor, leaving out of consideration the study of the turnover of seasonal laborers and the roving out-of-door workers. The author was assistant in political economy in the University of Chicago. The work is divided into three parts, the first devoted to a general analysis of labor turnover, the second considers the cost to employer and workman, the third deals with the causes.

The chief point of excellence in the book is that practically all the statements made are based upon statistics culled by the author from industrial plants throughout the country, or upon observation. Tables of statistics are given, taken from the labor records of widely different industries. The author classifies labor turnover into eight divisions: resignations, lay-offs, discharges, death, accident, sickness, superannuation, marriage. The cost of the turnover is considered as a big item, including the cost of hiring and training new men continually. The workman also suffers loss of money during the time he is out of a job.

In the third part the author considers the various causes of labor turnover, which he divides into eight groups with subdivisions, as: Reduction in the quantity of work due to varied cause; causes pertaining to the job itself; the methods of handling the men; personal matters between workmen; causes pertaining to the worker individually; undesirable workmen; attractive offers elsewhere; living conditions; changes in the family of the worker.

Les Applications de La Physique Pendant La Guerre. Pages, 322; 7¾ x 5 in.; illustrations, 322. Published by Masson et Cie., 120 Boulevard St. Germain, Paris. (VI).

The practical utilization of the science of physics for the waging of war either directly or indirectly in actual fighting, is described at considerable length with special emphasis on the progress made after the beginning of hostilities. The principal subjects covered are: Reconnaissance, including searchlights, optical grinding, flares, field and spy glass, telescopes, periscopes and telemeters; photography, including sighting instruments, panoramic photographing, visible smoke signaling from airplane; in flying, air pressure, wind speeds, science of bombing; dirigible, submarines, and torpedoes; ballistics; in artillery practice, photography of projectiles in flight, trajectory, long-range firing, auditory zones in bombardments, gun erosion, effect of projectiles; concerning explosives, comparative studies, dispersion of firing, locating unexploded shells; gun carriages; wireless, gyroscopic and x-ray apparatus.

The revised edition of "Among Industrial Workers," a handbook of the Young Men's Christian Association covering work in industrial fields, has been issued by the Industrial Department, International Committee Young Men's Christian Association, 347 Madison Avenue, New York. The volume is in stiff paper cover, 9 x 6 in., pages, 154; devoted to an analysis of industrial workers in cities and smaller fields, the relationship of the association to the employer and to employees, methods of co-operation with other agencies and a study of the different racial and occupational groups of workers, the essentials to the extension of industrial welfare, Americanization, industrial service, and the utilization of motion pictures, exhibits and music in connection with such work. The place of religious work in the program of industry is also discussed. In relationship with the activities inside and outside of plants, phases of physical, social, educational and other efforts are discussed in detail. Memoranda pages are included at the end.

PLUMB PLAN FOR STEEL WORKS

Washington Colloquy Which Throws Some Light on the Hinted Proposal

WASHINGTON, Aug. 12.—The possibility of attempting to nationalize the steel industry, in line with the Plumb plan of nationalization of the railroads, was hinted in the railroad hearings before the House Committee on Interstate and Foreign Commerce. It came out in the testimony of Frank Morrison, secretary American Federation of Labor. But Mr. Morrison avoided direct answers to questions on this subject by Representative Denison of Illinois. At the same time, Mr. Morrison declared that the American Federation of Labor would succeed in organizing the steel industry.

"We believe in collective bargaining," said Mr. Morrison. "The adjustment of all differences as to hours and wages and conditions by the employers sitting on one side of the table and the representatives of the employees on the other. Where the employers are willing to meet the representatives of employees there is very little difficulty in securing an adjustment. I mean it is possible; but the Steel Trust absolutely refuses to permit employees to organize and has gone to the extent that our men are prevented from holding meetings in cities in Pennsylvania. It is just such acts of representatives of great corporations that have assisted in creating an unrest in this country that is at the danger point at the present moment. We feel that this bill should be enacted for the purpose and for the benefit of the public, for the benefit of the workers and to help in stemming the tide of unrest which is rising rapidly."

"I would like to ask you, Mr. Morrison, how the passage of this bill would affect the unrest among the steel workers, or would it?" asked Representative Denison.

"It would bring about a cessation of the unrest among the millions of railroad workers," replied Mr. Morrison.

"You were just speaking about the unrest among the steel workers," insisted Mr. Denison.

"I said stem the tide," went on Mr. Morrison. "I mentioned the Steel Trust as the one great leading organization that had kept itself in defiance of the Government and of the law of the land."

"This legislation would not help that situation in the steel industry, would it?" persisted Mr. Denison.

"It would bring hope to the workers that at some future time conditions might be brought about that would be helpful to them and do away with their long hours," replied Mr. Morrison.

"Do you mean by that, that it would give them some hope that the same plan would be adopted with reference to the steel industry?" asked Mr. Denison.

"I am not authorized to make a statement as to the future in other industries than the railroads," replied Mr. Morrison.

"You would not care to give us any of your individual opinions on these matters?" asked Mr. Denison.

Increase of 1,000,000 Labor Members in Year

"Well, I believe that the labor movement, with its growth of over 1,000,000 members in the last year, with its continued agitation, will organize the steel trust and establish the 8-hr. day in that industry," answered Mr. Morrison.

"I was not asking you in regard to that," said Mr. Denison; "what I asked you was, do you think this same principle or plan you are asking to be applied to the railroads should also be applied to the steel industry because steel is an absolute necessity to the American people and is a monopoly?"

"Yes, it is a monopoly," returned Mr. Morrison. "I am not authorized to make a statement in regard to that particular industry. I do know that the United Mine Workers policy committee declared in favor of nationalization and democratic management of all coal mines."

"Similar to this plan, you mean?"

"Well, the resolution does not state that. It simply makes the statement—that is, they want something more than government ownership. They want some say, the people who are working, in how it is going to be handled."

"That is commonly called socialization?" continued Mr. Denison.

"Well, I would not want to say that that is what is meant by it," answered Mr. Morrison. "There are so many terms and so many definitions of those terms that I might be in error."

Government Making of Railroad Supplies

Glenn E. Plumb, author of the Plumb plan, touched briefly during his testimony on the possible development of such a plan as is being tentatively tried out by the War Department in the manufacture of supplies for other Government departments at arsenals. (THE IRON AGE, issue of Aug. 7, page 387.)

Mr. Plumb said the arsenals and other munitions plants built during the war could be utilized to make supplies for the railroads at less cost than they could be obtained from private companies. In reply to a question as to whether the Plumb bill would permit competition of this nature with private manufacturing companies, Mr. Plumb said it would. O. F. S.

Manufacturing Astride the International Boundary Line

An unusual situation exists at the plant of Butterfield & Co., manufacturers of reamers, taps and dies, Derby Line, Vt., from the fact that the plant is built so that it straddles the international boundary between the United States and Canada. To call at the works office it is necessary to go into Canada, as it is over the line about 1000 ft., and visitors therefore have to pass both the United States and the Canadian customs officials, both coming and going.

About half of the factory is in the United States, and the boundary line runs right through one of the main factory buildings. The revenue laws oblige the company to operate two shipping offices with shipping clerks in each for all Canadian-made stuff must be billed and shipped through Canadian port or door. Hence the company ships from both sides of the line and the two clerks can talk to each other across the line.

A Greaves-Etchells electric furnace has been bought through Fenwick Freres & Co., New York, for Captain Teixeira, a member of the Brazilian military commission, who recently spent several months in this country investigating steel plants and electric furnaces.

Bureau of Standards Studying Phosphorus in Steel

WASHINGTON, Aug. 12.—The Bureau of Standards has undertaken an elaborate investigation of the effect of phosphorus content of steel. The announcement of the bureau declares that this metallurgical problem is of great practical interest because of the effect of variation in the amounts of phosphorus on the physical properties of steel, including the determination of the limiting quantities permissible in the various grades. The investigation outlined by the bureau will touch upon the effect of phosphorus on the micro-structure of carbon steel, both basic and acid open hearth, after the steel has been subjected to various heat treatments including the cooling through the 750-600 deg. C. range at various rates, after the steel has been heated to 900 deg. C.

To offset the diminished box car supply available for the iron and steel industry the Erie railroad is using refrigerator cars to carry tinplate from the Mahoning and Shenango Valleys. Most of the tinplate hauled in this manner is westbound, the refrigerator cars being used on their way west after carrying produce and meats to the eastern cities. The plan has materially improved tinplate shipments.

LABOR QUESTIONS DOMINANT

Unionizing Ohio State University Faculty—Great Lakes Shipbuilding Record

(Editorial Letter)

CLEVELAND, Aug. 11.—The labor situation dominates all other issues connected with industry in America to-day. That fact is evident everywhere, although in hardly any two districts in the country is it manifested in exactly the same way. In Cleveland at the present time, when the railroad situation is much more favorable than it was up to Friday of last week, attention is concentrated principally upon the paralysis of the iron ore movement due to the demands of the dock workers for 30 per cent increase in wages and for shorter hours. That condition will probably not last long and has no special significance.

Proposed Union of Professors

Of more significance than dock strikes or even than strikes of railroad workers are the formation at Chicago of a union called the International Federation of Technical Engineers, Architects and Draftsmen and the proposed unionization of State of Ohio employees and the faculty of Ohio State University, who give instruction to about 6000 young men and women, including many in engineering courses. Disregarding for the moment the trend toward unionism among the State employees, one may well turn to the proposed forming of a union of professors, some of whom are paid $3,000 to $4,000 per year. What does that really mean? It is due, of course, to the notorious fact that salaries, although advanced, have not kept pace with the steady upward movement of the cost of living.

That these professors have a grievance cannot be denied, but the significance of their proposed action, which has such strong support as almost certainly to insure its success in enlisting a large percentage of the membership of the faculty, is the willingness of these men of learning to adopt such a course. President Thompson, of Ohio State University, said to the writer last week that he would not and could not question their right to organize, but he did not say what he would do to meet the salary problem. There is a special committee at work to get at the underlying facts and its thoroughness of performance has been assured by the selection of Dr. T. C. Mendenhall, of Columbus, an eminent man of science, as chairman. Probably the committee will find a way of affording at least temporary relief, but it will be more useful if it can show how permanently to remove causes which result in enlisting in the union cause the leaders of the youth of a great college.

One thing seems certain. These men, if they become union members, will be compelled to a large extent to accept union conditions. That is logical. But will they who are receiving salaries graded according to their several abilities be willing to conform to a dead level of so much per day or week? Will the learned professor of many years' experience in mechanical engineering be willing to be rated with one of very limited experience as are union men in a shop? Will the professors be willing to conform to an eight-hour day? Some of them probably do not work that many hours now. Verily the path to trade unionism is not entirely one of roses. The difficulties in the way, however, merely emphasize the significance of professional men being willing to affiliate themselves, as the Ohio State University union proposes to do, with the American Federation of Labor, its bartenders and hod carriers. It is something for business men to think about.

The other day in Columbus, where the professional union is being discussed, the *Evening Dispatch* published a cartoon which ranks high in the contribution of artists to current consideration of vital problems. It shows Uncle Sam standing with a grave, if not worried, expression on his face while a workingman in front of him points to a gauntlet just thrown down on which are the words, "Employees' Ownership." Is that an exaggeration? Whether it is or not, it is certain to make thinking men think more profoundly, and that, next to absolutely convincing the reader, is the highest service that the press can perform.

Building Steel Ships

One of the consequences of permitting 40,000 tons of plates to be shipped to Japan last year is disclosed in the report of the United States Shipping Board Emergency Fleet Corporation. Henry Penton, of Cleveland, district manager for the Great Lakes District of the corporation, while not complaining of the concession to Japan, says that had it not been made there would have been built on the lakes not only the 264 steel ocean-going boats launched since September, 1917, but also as many more as were built by the Japanese with the 40,000 tons—about 26.

Mr. Penton has made a wonderful record. The United States had hardly entered the war when he offered his services and those of his two sons to the Government. A few months later, the offer as to himself was accepted and he was placed in charge of the building of vessels on the Great Lakes. He threw himself into the work with tremendous energy, overcame countless difficulties, including the handling of numerous difficult labor situations, and did not ask to be relieved until a few months ago when he asked the privilege of retiring Aug. 1. But Aug. 1 has passed and the corporation officials will not let him go. An officer of one of the largest shipbuilding companies on the lakes said the other day:

"To lose Mr. Penton's services now would be a calamity. It is not often that a Government official succeeds in getting results and at the same time establishing cordial relations with contractors, but this is largely due to Mr. Penton's mastery of the subject and his utter disregard of red tape. When there is no rule to a fit a case, he makes one, and when there is one he doesn't like, he changes it first and argues it afterward."

So Mr. Penton works on. The Government has presented him a medal inscribed, "For distinguished service in the building of merchant ships." And he continues to superintend the building of what will be one of the important units of the future merchant marine of the United States. If he were an Indian, he would be called Man Who Can't Get Away From His Job.

G. S.

Soldiers for Higher Industrial Positions

A committee of Pittsburgh manufacturers and other business men has been formed to co-operate with Col. Arthur Woods, assistant to the Secretary of War, who has charge of finding positions for returned soldiers. Colonel Woods is making a special effort to find openings for men who, having professional or technical training, cannot readily be placed. Many are specialists in their lines. The list is made up of men possessing administrative or executive ability and includes lawyers, doctors, office and sales managers, factory superintendents, chemists, traffic experts, insurance men, accountants, engineers, architects, college professors. The discharge of all temporary officers on or before Oct. 1 will add to the number available for the far-sighted employer. Lieut. Basil Dolphin, field representative of the War Department, is in Pittsburgh and has established headquarters in the Chamber of Commerce Building. Employers may write direct to Col. Arthur Woods, Washington, informing him of their needs or take the matter up with Lieutenant Dolphin.

Fairbank & Co., Cleveland, dealers in iron ore, pig iron, coal, coke and steel, have opened a branch office in Uniontown, Pa., for handling coal and coke. Harvey C. Bartel, formerly connected for ten years with the coke industry in the Connellsville region, is in charge.

REPORT OF AVIATION MISSION

Single Centralized Division for Army, Navy and Civil Aviation Proposed

WASHINGTON, Aug. 12.—The War Department has made public the recommendations of the American Aviation Mission concerning the future of the aircraft industry, with a series of important suggestions concerning the technical upbuilding of the industry. Secretary Baker has endorsed the report, with the exception of the item favoring the creation of a single centralized aircraft service for the army and the navy. These he thinks should be kept separate. He lays particular stress, however, upon the necessity for governmental interest in the problem of production.

"The point emphasized by the mission," says Secretary Baker, "is the importance of maintaining adequate production facilities in this country. This, it is believed, can be brought about best by the establishment of a government agency which will lay down the necessary rules, national and international, for aircraft operation, prevent discouraging lack of uniformity in State regulation and generally stimulate public and private enterprise in perfecting and using commercially this mode of transportation."

After surveying the work which has been done abroad to make aviation a peace pursuit, the report makes detailed recommendations concerning the technical features of the problem, the most important of which are given below:

All technical functions to be centralized in a single technical division which shall perform the work for the Army, Navy and Civil aviation, to be headed preferably by a civilian of wide executive experience, with representatives of Army, Navy and other Government departments interested in aviation as assistants.

That the most advanced equipment be secured; and that such an organization shall be established as shall assure that the research, experimental and development activities of the Government shall be second to none.

That the research, experimental and development facilities and equipment now used in aviation by the Army, Navy and other Government departments be put under the control of the technical division.

That ample means be provided for the special technical needs of the Army, Navy and Civilian flying.

That all branches of aeronautical research, experiment and development be covered.

That the facilities of the technical division be available to private inventors and designers, upon proper and reasonable terms.

That the technical division be a critic of and supplement private design, rather than aim at design on its own account. Competition of the Government with the industry to be avoided.

That technical facts and data developed by the division that may be helpful to the industry be published.

That the technical division maintain representatives in Europe charged with the duty of liaison between the American and European technical organizations.

That a definite method of payment for independent design be worked out by the Government to the end that design and improvement be stimulated and not stifled.

That the technical division shall include an inspection and testing department, which shall issue certificates of airworthiness for all machines for private and commercial use, and shall, from time to time, inspect all machines and appliances, including landing fields, signals, etc., used by the public. In co-operation with the Civilian Division, this department shall have power to limit and control all types of air machines used in commerce, and to test such machines before they become production models.

That close co-operation be maintained with technical aeronautical bodies, and with industrial bodies engaged in aeronautics, so that standardization of materials and practices may be carried forward rapidly.

O. F. S.

Higher coal prices have been made in Germany, according to Consul George D. Hopper, at Stockholm, Sweden. In a report to the Bureau of Foreign and Domestic Commerce he says the Rhine-Westphalian German Coal Syndicate marked up prices on coal in effect from June 16 to the end of July to 18 marks per metric ton, (about $1.50) and that the prices on coke were raised another 15 marks per metric ton.

Government Offerings

The Director of Sales of the War Department announces that the sales of surplus war material made in the week ended Aug. 1, amounted to $4,032,528.54, bringing the total sales of surplus made between Jan. 1 and Aug. 1, 1919, to $363,814,554.31. This sum represents a recovery of 77 per cent of the cost of the materials to the Government. Sales of non-ferrous metals amount to $1,216,427.35. Embraced in this report were sales of quantities of platinum and iridium which were sold at fixed prices, the former metal bringing $105 per ounce and the latter $200 per ounce.

Unadjusted Contracts Difficult to Handle

The liquidation of incompleted War Department contracts is proceeding with decreasing speed. The Department officials find that the unadjusted contracts that are left are more difficult to handle than the smaller ones that have been settled. The value of the uncompleted portions of suspended contracts that had been liquidated to July 19, totals $1,715,605,000 or 46.1 per cent of the total value of suspensions as reported to that date. In 19,570 contracts liquidated, the value of the uncompleted portion was $1,715,605,000. There was paid to contractors in settlement $235,626,000, thus effecting a saving of $1,479,000, or 86.3 per cent. The greater ease of negotiations has, in general, caused small contracts to be liquidated first. In most bureaus the average value of contracts remaining to be liquidated is now above the average value of all contracts suspended.

The Ordnance Department has liquidated only $448,-117,000 out of the suspended contract total of $2,016,-096,000, or 22 per cent.

Sale Dates at Various Cities

The United States Ordnance Department, Salvage Board offers through the Philadelphia office, 1710 Market Street, the folowing material until 2.30 p. m., Aug. 25: At William Wharton, Jr. & Co., Easton, Pa., about 4500 tons of 9.2-in. shell forgings and 2.30 p. m., Aug. 18, on about 1787 tons of 155-mm. shrapnel forgings.

The Bridgeport office, 945 Main Street offers until 1.30 p. m., Aug. 18, the following: At Remington Arms Works, Bridgeport, Conn., about 84 tons of round cold-rolled Bessemer steel; about 153 tons of hot-rolled gun steel; about 281 tons of hot-rolled lock steel; at the Whiting Mfg. Co., Bridgeport, about 306 tons ⅞-in. hot-rolled steel bars; at the Locomobile Co., Bridgeport, about 70 tons of forging quality machine steel, 21 tons round 5 per cent nickel steel, 20 tons round low carbon machine steel and about 100 tons round chrome nickel steel; at Government Warehouse 193, Bridgeport, about 130 tons pattern dies of standard die stock.

The New York office, 1107 Broadway accepts proposals until 11 a. m., Aug. 22 on the following material, at the A. P. Smith Mfg. Co., East Orange, N. J., about 2100 tons of 240-mm. howitzer shell forgings.

The Cleveland District Ordnance Salvage Board has decided that all steel sold by negotiation must be in lots having a value not greater than $1000. The following lots of materials will be sold to the first person offering the price which has been fixed as a fair value: 5,503,400 lb. steel forging billets at the Cleveland Crane & Engine Co., Wickliffe, Ohio; 3,846,340 lb. steel forging billets at McKinney Steel Co., Cleveland; 13,-172 tons 6 11/16 in. Gothic squares at McMyler Interstate Co., Bedford, Ohio; 6185 tons 6 11/16 in. Gothic squares at McMyler Interstate Co., Bedford, Ohio; 9339 bars 82 mm. diameter by 12 ft. long, 1323 tons, at Hydraulic Pressed Steel Co., Cleveland, and a number of lots of bars ranging from 55 to 2396 tons at the plant of the Hydraulic Pressed Steel Co.

At G. T. Sutterley & Co., 1720 North Second Street, Philadelphia, until 2 p. m., Aug. 21, is offered about 23 tons of cold rolled steel.

The Dayton Malleable Iron Co., Ironton, Ohio, has under construction a 15-ton open hearth furnace that will use Solvay gas for melting purposes. The company has recently completed a core room, 60 x 80 ft., in which is installed the latest type equipment.

ESTABLISHED 1855

THE IRON AGE

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Unrest and Work

The truest thing that has been said about the condition of the world to-day is that hard work is needed. The unwillingness to work hard for a given return is at the root of most of the troubles, alike in the United States and in Europe. The disposition—or indisposition—is so general that it is clear it has a psychological origin. Whether it is a necessary result of war or not, it is a result of the war that ended nine months ago. The attitude of labor is the same in the United Statese and in Great Britain, but in the latter country the attitude is more pronounced, and as Britain had more war than we did the difference in degree is only natural. Even such superficial studies as have been made of the high cost of living in the United States show that the indisposition to put forth great effort is a common one, not confined to workmen but exhibited by wholesale and retail dealers who aim to make much larger profits per unit of turnover. Nor does the indisposition stop there, for the buyer shows less disposition than he should to make his purchases with discretion. He, or she, pays the price asked by the corner groceryman and then complains of the high cost of living.

There is a disposition to regard the railroad brotherhoods as actuated by different feelings than those of other men in the proposals and threats they have made in Washington in the past fortnight. That view is probably incorrect. The psychology is probably much the same in all men's minds, the difference being in the circumstances. The circumstance that the Government took over the control, and operation of the railroads in connection with the war simply affords the brotherhoods their opportunity. It would be quite misleading, probably, to assume that if the Government had taken over the trolley systems of the country, or the steel industry, in similar circumstances, that demands corresponding to those of the railroad brotherhoods would not be made.

The only hope of solution of the whole matter is to regard these various developments as constituting but one problem, a problem with a psychological basis. The will to labor must be fostered by all means that can be found. Neither the preaching of sermons nor the passage of laws, nor any single thing, can be the adequate corrective. The minds of men are affected with a poison for which there is no one antidote, and all the remedies available must be applied.

Observers who have studied conditions in both countries assert that Great Britain is in no position to compete with the United States, British labor having made conditions so bad in that country. The responsibility is placed not entirely upon the war, but in part upon British politicians. It is no comfort to us in the United States, but rather the reverse, that conditions are worse abroad than here. The situation places a responsibility upon the United States to show the way, but instead of setting a good example we are showing a disposition to follow a bad example.

Economic laws always tend to apply their remedy in time, sometimes harsh, sometimes mild. Assistance of the mild character, and with perhaps correspondingly restricted results, is likely to be furnished in connection with the present difficulty. However the matter may be analyzed by one party in interest or another, a fundamental fact is that the willingness to spend money exceeds the anxiety to acquire it. A re-distribution is in process, in some respects, and that will help. Furthermore, when insufficient reward is offered capital tends to hold back from investment until conditions become more favorable and thus a balancing or modulating effect is promised. These, however, are mild and inadequate influences. The great force must be the development of a willingness to work hard. It is to be questioned whether this can be developed in an important way without the coming of hard times.

The proposals for a merger of Belgian steel companies have been under discussion since February, but latest advices are that prospects are not promising for their carrying out. A chief drawback is the inherent jealousy between the Liège and Charleroi districts, which will make very difficult the carrying out of any plans for cooperation in reconstruction or for the building by

a union of capital and effort, of one new steel plant of considerable size to take the place of capacity that has been destroyed.

The Carnegie Policies

The extent to which Andrew Carnegie dominated the steel trade of the country in the 20 years before the United States Steel Corporation was formed is not fully appreciated from this distance. Co-operation has been so long held up by the Steel Corporation's leaders as the policy under which the industry can best advance that the younger generation of manufacturers know of the effects of unrestrained competition chiefly as they hear the story of the old days. One of the things capitalized in the United States Steel Corporation, and by no means the least, was admittedly the exemption from destructive competition which it was believed the industry would enjoy when Andrew Carnegie had ceased to be a seller of steel. In the year before his holdings were acquired his plan for the building of a great tube works on the south shore of Lake Erie and that for a new railroad to the seaboard to compete with the Pennsylvania system spurred the greatest financier of that time and this to his master stroke in consolidation.

Though in all the years of his power Mr. Carnegie relied upon a group of able and active partners to bear the burdens of the struggle, he alone made the decisions in hours of crisis. His control of the organization was complete and his sway absolute, and he imbued his co-workers with his beliefs in the measures he enforced. He was the unbending advocate, and his plants the shining examples, of the policy of running to full capacity. He fired his partners with his ambition for record-breaking. Always they were made to feel the insatiate urging for tonnage, and competition within the organization for the increase of product was as cardinal in the Carnegie creed as was unchecked competition with other makers for the filling of order books. Although often a party to agreements or pools, Mr. Carnegie was always outspoken in his disbelief in them. They might serve a temporary end, but he was often the first to break away from them when leanness came upon the market. At all such times his maxim was that the way to lift the market was to get under it.

Mr. Carnegie was not a steel maker in the sense of being versed in the metallurgy of steel or acquainted with the mechanics of steel production. Sir James Kitson, then president of the Iron and Steel Institute, asked him at Pittsburgh, on the institute's visit of 1890, whether he understood the details of the machinery at his blast furnaces and steel works, and he answered, "No, frankly, I don't understand the details of much of my machinery, but what I do claim to understand is the human machine." In an address at Stevens Institute, when given a testimonial, he submitted as a fitting epitaph for himself, "Here lies a man who knew how to get around him men cleverer than himself." He made partners of the promising men who came into his employ, and was willing to see them get fabulous rewards.

Karl Wittgenstein, the Austrian steel master, sometimes called the Carnegie of Austria, read a paper 20 years ago before an engineering society at Vienna on "The Development of Industry in America." In analyzing the genius of American industrial life he spoke of the American love of speculating, using the word in the better sense of willingness to risk for the promotion of an enterprise in the face of conditions involving much uncertainty. Without this willingness he considered the manufacturer to be only a bungler. Andrew Carnegie had in no small degree the speculative trait, of which Wittgenstein has this to say:

> A man lacking the speculative mind, a manufacturer without the capacity for taking into consideration besides the visible moments also the uncertain ones lying in the future and of coming to corresponding decisions, even at the risk of having events turn out quite differently, is unfitted for the management of an industrial establishment. This faculty as well as the courage to exercise it is not innate but must be acquired by diligence and practice. The American often possesses this faculty.

There has always been admiration for the courage Mr. Carnegie showed in making extensions when the outlook for steel was unpromising and in spending money lavishly to equip his plants with the very latest appliances—this at a period when our steel production was only one-third of the present-day scale. In this respect he set a pace which others in the trade were forced to follow. But the formation of the Steel Corporation and the large influence its policies have had throughout the industry, especially since the panic of 1907, represent a definite turning away from the Carnegie idea of unrestrained competition and the survival of the fittest. There have been some thoroughly open-market periods since Mr. Carnegie's retirement from active participation in the steel business, but the well-remembered aggressiveness of the Carnegie régime, which at times went to the length of any-price-to-get-the-order, has been absent. The later generation of steel masters, while they have been admirers of the Carnegie daring, have not cared to imitate it. Whatever dreams of domination some of the promoters of the Steel Corporation may have had, as exemplified later in the Hill ore contract, which was thought to bring the corporation's control of Lake ores to nearly 80 per cent of the total, have long since disappeared. The era of live and let live, inevitable successor to the Carnegie era of destructive competition, has evidently come to stay.

Great Britain's Mounting Costs

The first annual dinner of the National Federation of Iron and Steel Manufacturers was held recently at London under trade conditions not conducive to cheerful views of the future of the British iron and steel trades. The *Iron and Coal Trades Review* in its comment says:

> With the impending increase in the cost of coal operative it looks as if home prices would be double those ruling in the United States. We hardly suppose the most beneficent Government would be prepared to grant an *ad valorem* tariff of 100 per cent. It then becomes a question whether or not it is best to face

the position at once. Free imports of American steel at present prices mean that our works must gradually shut down. They could not be reopened until such time as the cost of production has come down to a competitive basis. This would be a very serious policy both for the shareholder and for the economic welfare of the country; but it is a question whether or not a small measure of protection would not temporarily alleviate our difficulties without providing any permanent cure, and a cure, to be effective, must be permanent. It does not matter very much whether a works has old or new machinery. No plant can fight against an advance in coal of 18s. per ton compared with the pre-war period. Adopting the Sankey evidence figures of 4 tons of coal to 1 ton of iron, this means an increase of £3 12s. per ton in fuel costs alone.

The same journal adds that no labor-saving device and no economies in coal consumption can save such a situation. It points out that American advances upon pre-war costs are trivial in comparison, the result being that "the selling price of foundry iron at Birmingham, Ala., is £5 a ton, whereas our price for similar iron is likely to be £10." At the same time British market reports show that pig iron export business is quieter and American competition is beginning to tell in neutral markets. There is confirmation of this in the recent increase for American pig iron for export to Japan, Holland, Italy, Belgium and Scandinavia. The United Kingdom itself has again been in the market for basic iron from this country and has bought several thousand tons in the past week, while inquiry for 25,000 tons is pending.

The Coal Situation

With the recent sharp increase in coal production it is not certain that there will be a plainly marked decision as to whether the coal operators have been right in their "stock up" propaganda of the past few months. If an acute shortage occurs next winter the operators will be vindicated, but if no serious shortage occurs it will be a moot question whether a shortage that was likely was averted by the advice of the producers being heeded. The propaganda began early in the year, after removal of Government price restriction, and has been continued to date, but while bituminous coal production averaged only 1,300,000 tons a day during February, March and April, it increased early in May to a rate of 1,500,000 tons daily, and in the first half of July it jumped to a rate of 1,650,000 tons daily, which since has been maintained. That is an increase of fully one-fourth from the low rate of February, March and April.

Of the consumers who have not given serious heed to the "warnings" of the coal operators some have undoubtedly regarded the propaganda as merely an effort to bolster the market. Such a view is unjust to the operators. It should not be taken for granted that a rise in the market price of coal next winter would be to the advantage of the operators in the long run. At the best, a high market price for a commodity is of benefit to the producer only when he is able to sell at that price. A high price produced by insufficiency of transportation might be of little benefit. The operators have sold a considerable tonnage of coal, though not nearly as much as they usually sell, at flat prices for delivery to the end of the coal year March 31. On this coal they would receive no greater return if the general market should advance, and the coal would be mined at greater expense per ton.

The wage agreement now in force with the miners runs until the President's proclamation declaring that a state of peace is restored. At that time the miners have the option of opening the wage subject or of allowing it to rest until the end of the coal year. If the arrival of peace and a shortage of coal should fall at the same time there can be little doubt what the miners' organization would do. It would be a very awkward time for the operators to negotiate a wage scale. The conventional date for wage scales, April 1, is one that is in normal times quite satisfactory to both operators and miners. It is a good date for the operators, as there is no pressure for coal, and it is a good date for the miners, as it is more convenient to strike on that date than at almost any other time in the year.

It is a very unfortunate thing that the price of coal should be determined by the fortuitous circumstance of the railroads being able or unable to handle the traffic offered, and yet that in substance is what the market issue of next winter hinges upon. The condition is unfortunate not only for the coal producer and the coal consumer but also for the railroads themselves. Railroad capacity is less in winter than in summer, while demand for coal is greater, and as coal movement represents a very considerable fraction of the total rail traffic this is an important matter. If the solution of the problem in the best interest of the producer, the carrier and the consumer is to move coal in summer for stocking purposes, then it is certainly a very crude method of applying the solution to have success hinge upon how much of a shortage scare the operators can produce by propaganda methods each summer. This disturbing element, by the way, would be greater were it not for the existence of the Great Lakes. As they are open for navigation only when the weather is moderate, and afford very cheap transportation then, the lake coal movement has grown up, forcing a certain amount of production and transportation in the warmer months and correspondingly relieving the mines and railroads in the colder months. The lake coal movement, however, represents only about 5 per cent of the total production of bituminous coal in the country.

Government regulation of business activity is usually to be deplored, but there is a possibility that an arrangement might be worked out in the case of coal that would be beneficial. The most inviting point of attack would be through the railroads, which are already under Government control, as to rates charged and as to certain features of the service they render.

The Blandon Rolling Mills Co., Blandon, Pa., is resuming operations in the different departments of its works at regular capacity. Following the opening of the puddle mill late in July, work has been resumed at the 8-in. mill. The company is said to have orders on hand to insure continuous operation for some time to come.

Steel Ingot Output Increasing

The output of ingots by steel works in the United States in the month of July amounted to 2,984,858 gross tons, or 114,802 tons a day for 26 working days, as compared with 2,640,984 tons, or 105,639 tons daily, in June. The July output was at the rate of about 35,473,886 gross tons a year, based on 309 operating days and on reports to the American Iron and Steel Institute from 30 companies, which in 1918 made 84.03 per cent of the total production.

The table below gives the tonnage of steel ingots produced in 1918 by 29 companies making in 1917 about 85.10 per cent of the entire amount, and for the past seven months figures from 30 companies making 84.03 per cent of the production in 1918:

Monthly Production of Steel Ingots of Companies Reporting —Gross Tons

	Open Hearth	Bessemer	All Other	Total
January, 1918 ..	1,763,356	429,588	10,901	2,203,845
February	1,805,233	454,457	14,051	2,273,741
March	2,331,048	763,255	16,078	3,110,381
April	2,377,974	769,249	16,187	3,163,410
May	2,475,131	796,244	15,858	3,287,233
June	2,281,718	786,380	15,348	3,083,446
July	2,311,545	784,997	17,093	3,113,635
August	2,299,177	766,860	17,643	3,083,680
September	2,407,993	772,863	16,802	3,197,658
October	2,527,776	807,043	17,377	3,352,196
November	2,291,720	753,409	15,631	3,060,760
December	2,273,189	706,844	12,273	2,992,306
Total, 1918..	27,145,860	8,591,189	185,242	35,922,291
January, 1919..	2,351,153	749,346	7,279	3,107,778
February	2,043,635	655,206	5,842	2,704,683
March	2,100,528	555,332	6,405	2,662,265
April	1,732,447	500,770	6,494	2,239,711
May	1,506,015	414,392	8,617	1,929,024
June	1,692,257	521,634	5,328	2,219,219
July	1,875,630	625,246	7,300	2,508,176
7 months...	13,301,665	4,021,856	47,265	17,370,856

Country's Estimated Production in 1919

The monthly production for the entire country, estimated from the tonnage reports of the 30 companies which made 84.03 per cent of the total output for 1918, is as follows:

January, 1919 ...	3,698,415	May	2,295,637
February	3,218,711	June	2,640,984
March	3,168,232	July	2,984,858
April	2,665,371		
		7 months	20,672,208

Large Increase in Steel Corporation Orders

Unfilled orders on the books of the United States Steel Corporation, July 31, were 5,578,661 tons, compared with 4,892,855 tons on June 30. This is an increase of 685,806 tons, against an increase for June of 610,545 tons, which was the first one since last October. The unfilled orders a year ago were 8,883,801, or 3,305,140 tons more. The table below gives the unfilled tonnage for the Steel Corporation at the close of each month beginning with January, 1916:

	1919	1918	1917	1916
January	6,684,268	9,477,853	11,474,054	7,922,767
February	6,010,787	9,288,453	11,576,697	8,568,966
March	5,430,572	9,056,404	11,711,644	9,331,001
April	4,800,685	8,741,882	12,183,083	9,829,551
May	4,282,310	8,337,623	11,886,591	9,937,798
June	4,892,855	8,918,866	11,383,287	9,640,458
July	5,578,661	8,883,801	10,844,164	9,593,592
August	.....	8,759,042	10,407,049	9,660,357
September	.....	8,297,905	9,833,477	9,522,584
October	.....	8,353,293	9,009,675	10,015,260
November	.....	8,124,563	8,897,106	11,058,542
December	.....	7,379,152	9,381,718	11,547,286

The largest total of unfilled orders was on April 30, 1917, when it was 12,183,083 tons; the lowest was on Dec. 31, 1910, when the total was 2,605,747 tons.

A strike vote was taken among several hundred iron and steel workers of the McKeesport district at a meeting held a few days ago under the auspices of the American Federation of Labor's national committee on organization. There was no disorder aside from the fact that five non-union men, said to be foremen in McKeesport mills, were ejected from the hall. When J. G. Brown, Washington, D. C., organizer of the federation, requested men not members of the union to leave the hall, the five non-union men remained in their seats until escorted to the door by several workmen. The result of the strike vote will be announced next week.

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To Rebuild Oxford Furnace

The Empire Steel & Iron Co. has decided to rebuild its blast furnace at Oxford, N. J., and Freyn, Brassert & Co., Chicago, who have been retained as consulting and supervising engineers, are now preparing plans and specifications which will include a new shell, new blowing engines, additional boilers and enlargement of the present stove capacity. The furnace will have a capacity of 400 tons of basic iron daily and will be equipped with a top following the Brassert double bell design and hopper extension skip incline, bins, etc.; also a pig casting machine and other up to date appliances. Most of the iron ore used at this plant is drawn from the company's nearby mines over its own railroad. The remainder comes from the Mount Hope mines, also owned and operated by the Empire company near Dover, N. J.

The So-Called Flood of Emigration

WASHINGTON, Aug. 12.—Detailed figures of emigration from the United States for the fiscal year ending June 30, 1919, have now been issued by the Bureau of Immigration of the Department of Labor. They emphasize the lack of foundation for an earlier statement by the Department of Labor that "a flood of emigration threatened depletion of our labor markets." Statistics showing races of emigrant aliens reveals that less than 60,000 of emigrant departures came from the Continental races that figure prominently in the recruiting of unskilled labor. Chief of these were 36,980 South Italians and 15,562 Greeks. No other European nationality rose above the 10,000 mark in a total of 123,522 emigrants—as distinguished from non-emigrant departures.

The itemized statistics by races of the number of aliens admitted to and departed from the United States during the fiscal year ended June 30, 1919, follow:

Race	Admitted		Departed	
	Immigrant	*Non-immigrant*	*Emigrant*	*Non-emigrant*
African (black)	5,823	6,439	976	3,028
Armenian	282	95	11	15
Bohemian and Moravian	105	148	412	9
Bulgarian, Servian, Montenegrin	205	234	3,241	132
Chinese	1,697	5,729	2,062	5,868
Croatian and Slovenian	23	5	154	10
Cuban	1,169	3,404	898	3,240
Dalmatian, Bosnian, Herzegovinian	4	2	2	2
Dutch and Flemish	2,735	2,832	1,356	4,348
East Indian	68	471	106	30
English	26,889	18,675	9,406	18,817
Finnish	968	281	497	108
French	12,598	8,645	5,472	6,493
German	1,837	340	343	176
Greek	813	689	15,562	875
Hebrew	3,055	605	373	165
Irish	7,910	2,236	1,934	1,225
Italian (north)	1,236	1,682	1,195	675
Italian (south)	2,137	3,844	36,980	3,641
Japanese	10,056	4,848	2,127	9,106
Korean	77	25	23	21
Lithuanian	160	36	6	5
Magyar	52	5	10	....
Mexican	28,844	15,932	17,793	8,764
Pacific Islander	6	3	2	12
Polish	732	305	153	9,956
Portuguese	1,574	505	3,525	633
Roumanian	89	43	60	46
Russian	1,532	507	1,717	808
Ruthenian (Russniak)	103	2	2	4
Scandinavian	8,261	4,902	4,865	4,375
Scotch	10,364	3,898	1,687	2,181
Slovak	85	31	1,150	25
Spanish	4,224	3,589	7,489	4,078
Spanish-American	3,092	2,322	799	2,299
Syrian	231	239	132	117
Turkish	18	27	275	21
Welsh	608	357	156	121
West Indian (except Cuban)	1,223	1,724	336	1,106
Other peoples	247	233	235	174
Total	141,132	95,889	123,522	92,709

Chicago Meeting of Mining and Metallurgical Engineers

Charles M. Schwab, chairman Bethlehem Steel Corporation, will be a speaker at the banquet of the American Institute of Mining and Metallurgical Engineers to be held in Chicago in September. In addition to some hundred and fifty papers which have been prepared for the meeting, which will be held in the last week of September, trips to the zinc smelting districts, the steel works at Gary and the refineries at Whiting and East Chicago are included. A boat trip on the lake, together with numerous social events, have been arranged for the ladies, at this time the fifth exposition of the Chemical Industries will be held in Chicago.

The Kaukauna Machine Works Co., Kaukauna, Wis., shipped 17 Mayer power hammers in 25 to 500-lb. capacities, to Paris, France, during the past week, and is filling other large export orders. The Mayer hammer is now the principal product and the shipment to Paris was the first of its new 500-lb. machines. Heretofore the maximum design was of 250-lb. capacity.

British Fuel Alcohol Report

The report of the British inter-departmental committee on the production and utilization of alcohol for power and traction purposes, recently presented to Parliament, is one of progress rather than of final recommendation. It contains, however, information which is of value. The committee was appointed with the purpose of investigating the various sources of supply of alcohol, the methods of manufacture and the cost of the product; the suitability of alcohol, either alone or in admixture with solid, liquid or gaseous combustible substances, for use in internal combustion engines, and the modifications of the existing types of such engines which may be necessary to the attainment of efficiency; and the question of denaturizing alcohol. The program was comprehensive, even formidable. To carry it through to an approach to completion would require more time than the few months which had been devoted to it when the report was written. Various elements of the investigation are still going forward, notably various laboratory researches and the collecting of scientific data through the use of alcohol on a commercial scale in the motors of a complete fleet of London omnibuses.

The Market in the United States

The subject is one of vast importance to American industry, as a user of combustion engines, of course, and, perhaps in a bigger sense, as manufacturers of motors for commercial and pleasure vehicles, tractors and stationary units in farming and kindred pursuits. Much is to be hoped for from investigations such as those of this British committee, as they get deeper and deeper into a knowledgeof the subject in its divers phases.

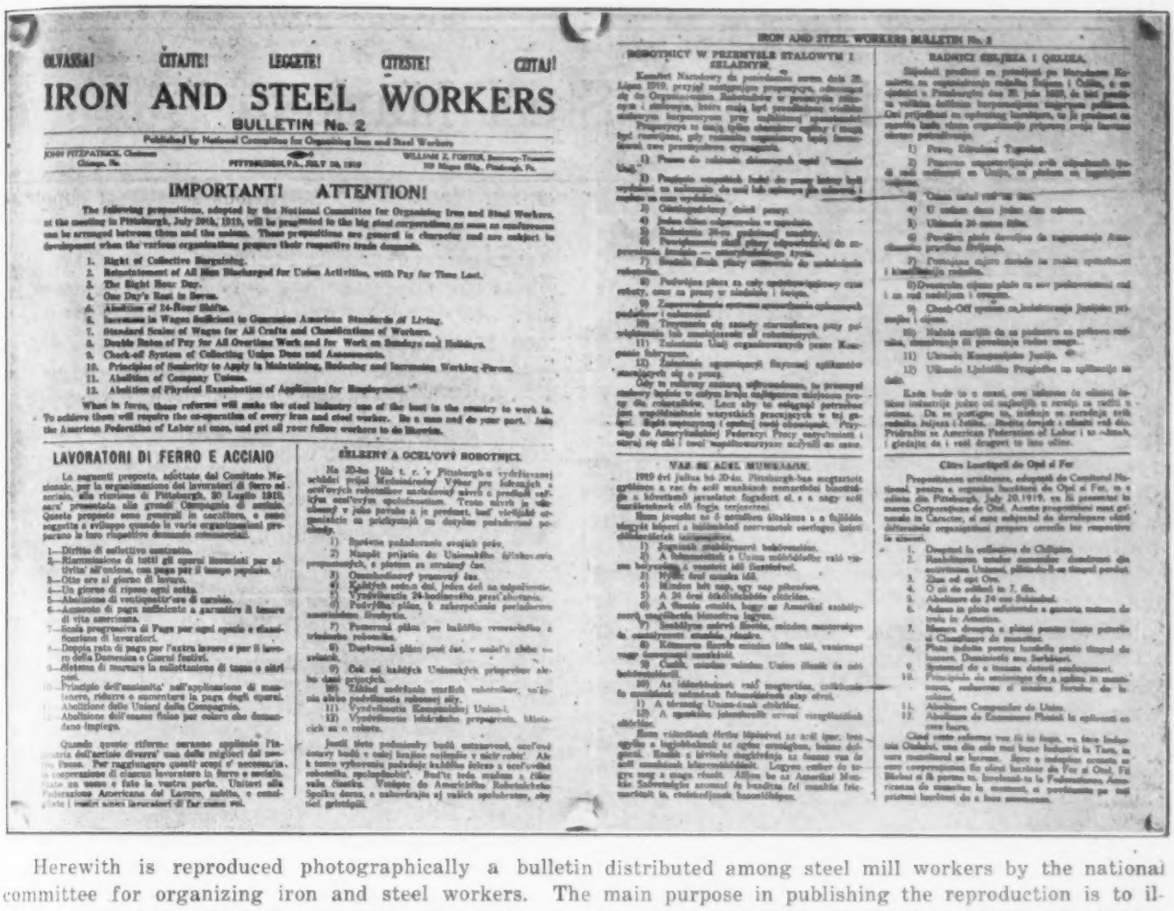
The committee states that any question of the use of industrial spirit alcohol, especially for motor vehicles, is one of price. It quotes the report of the departmental committee of 1904 which said: "We think that close investigation of the matter may be delayed until such time as there may be an approximation between the prices of petrol and spirit sufficient to create a practical alternative of choice between the two." The 1919 committee states, "It is clear to us that conditions fulfilling the anticipations of the committee of 1904 are in sight."

The report calls attention to the enormous growth of road motoring in the United States, in addition to which "there will now be added the requirements of high grade petrol for aeroplanes and airships to which no limits can be assigned." The very great increase of the sales price of gasoline to the public in America is pointed out. "Facts are not wanting to indicate the likelihood in the not distant future of so great a pressure of demand as to cause at any rate a very high level of prices, and we are satisfiel that close investigation should now proceed with the object of supplying alternate supplies of motor fuels derived from new or supplementary raw materials."

Best Sources in Tropical Vegetation

It is taken very seriously in England that the committee gives little hope that the vegetation of the British Isles or elsewhere in the temperate zone will provide economical sources of alcohol supply. The report points out, for example, that potatoes and artichokes give only 20 gal. of 95 per cent alcohol to the ton, while, on the other hand, tropical and sub-tropical countries can do very much better than that with various species of vegetation. The most promising source of alcohol supply the committee finds to be the flower of the mahua tree, which is common in various parts of India, and which material can be dried, packed and exported, and gives 90 gal. of 95 per cent alcohol to the ton.

A letter from Horace Wyatt of the committee, published simultaneously with the report, advises that the aerodromes of the Imperial air routes of the future be located in districts growing alcohol crops, that the spirit may be distilled on the spot, at a cost, in tropical countries, he figures, of not more than 7d. (14 cents) the gallon.



OLVASSA! ČITAJTE! LEGGETE! CITESTE! ČITAJ!

IRON AND STEEL WORKERS

BULLETIN No. 2

Published by National Committee for Organizing Iron and Steel Workers

JOHN FITZPATRICK, Chairman — Chicago, Ill.

WILLIAM Z. FOSTER, Secretary-Treasurer — 10½ Mayer Bldg., Pittsburgh, Pa.

PITTSBURGH, PA., JULY 20, 1919

IMPORTANT! ATTENTION!

The following propositions, adopted by the National Committee for Organizing Iron and Steel Workers at the meeting in Pittsburgh, July 20th, 1919, will be presented to the big steel corporations as soon as conferences can be arranged between them and the unions. These propositions are general in character and are subject to development when the various organizations prepare their respective trade demands.

1. Right of Collective Bargaining.
2. Reinstatement of All Men Discharged for Union Activities, with Pay for Time Lost.
3. The Eight Hour Day.
4. One Day's Rest in Seven.
5. Abolition of 24-Hour Shifts.
6. Increases in Wages Sufficient to Guarantee American Standards of Living.
7. Standard Scales of Wages for All Crafts and Classifications of Workers.
8. Double Rates of Pay for All Overtime Work and for Work on Sundays and Holidays.
9. Check-off System of Collecting Union Dues and Assessments.
10. Principles of Seniority to Apply in Maintaining, Reducing and Increasing Working Forces.
11. Abolition of Company Unions.
12. Abolition of Physical Examination of Applicants for Employment.

When in force, these reforms will make the steel industry one of the best in the country to work in. To achieve them will require the co-operation of every iron and steel worker. Be a man and do your part. Join the American Federation of Labor at once, and get all your fellow workers to do likewise.

LAVORATORI DI FERRO E ACCIAIO

Le seguenti proposte, adottate dal Comitato Nazionale, per la organizzazione dei lavoratori di ferro ed acciaio, alla riunione di Pittsburgh, 20 Luglio 1919, sarà presentata alle grandi Compagnie di acciaio. Queste proposte sono generali in carattere, e sono soggette a sviluppo quando le varie organizzazioni prepareno le loro rispettive domande commerciali.

1—Diritto di collettivo contratto.
2—Riassunzione di tutti gli operai licenziati per attività all'unione, con paga per il tempo perduto.
3—Otto ore al giorno di lavoro.
4—Un giorno di riposo ogni sette.
5—Abolizione di venticquattr'ore di cambio.
6—Aumento di paga sufficiente a garantire il tenore di vita americana.
7—Scala progressiva di Paga per ogni specie e classificazione di lavoratori.
8—Doppia rata di paga per l'extra lavoro e per il lavoro della Domenica e Giorni festivi.
9—Sistema di riscuare la collettazione di tasse e altri doni.
10—Principio dell'anzianità nell'applicazione di mantenere, ridurre e aumentare la paga degli operai.
11—Abolizione delle Unioni della Compagnia.
12—Abolizione dell'esame fisico per coloro che domandano impiego.

Quando queste riforme saranno applicate l'industria dell'acciaio diverrà una delle migliori del nostro Paese. Per raggiungere questi scopi è necessario la cooperazione di ciascun lavoratore in ferro e acciaio. State su uomo e fate la vostra parte. Unitevi alla Federazione Americana del Lavoro, subito, e consigliate i vostri amici lavoratori di far cosso voi.

ŽELEZNÝ A OCEL'OVÝ ROBOTNÍCI

Na 20-ho Júla t. r. v Pittsburgh-u vydržiavajúci schôdzi prijal Medzinárodný Výbor pre železných a oceľových robotníkov niekoľkosť návrh o predlože veľkým oceľovým spoločnostiam. Tento návrh je všeobecný v jeho povahe a je predmet, keď všetkých organizácie sa pripravujú na ústretné požiadavky podmienky.

1) Správne pokladovanie svojich práv.
2) Mzdy pri práci do Unionského účinkovania pripomienok, s plnom za stratený čas.
3) Osemhodinový pracovný deň.
4) Každých sedem dní, jeden deň na odpočinutie.
5) Vyrušenie 24-hodinového prac. striedania.
6) Podružba platu, k zabezpečenie pomerného amerického životu.
7) Pomerná plán pre každého remeselníka a triedenie robotníka.
8) Dvojtonná plán pre čas. v nedeľu alebo sviatok.
9) Ček od každých Unionských príspevkov alebo členských.
10) Základ nedeľania starších robotníkov, určenia alebo podržovania rozsahu síly.
11) Vyrušenie Kompanijnej Union-i.
12) Vyrušenie telesného preskúmania, hľadiacich na o robotu.

Jestli tieto podmienky budú uskutočnení, oceľový závod budú v celej krajine najlepšie v práci robiť. Ak to bude vyhovenie požiadaviek každého jednotlivca, a oceľových robotníka, spolupôsobiť. Buďte tedy mužom a čiňte vašu časťku. Vstúpte do Americkému Robotníckeho Spolku dnes, a zabezpečujte aj vašich spolubratov, aby tiež gristúpili.

IRON AND STEEL WORKERS BULLETIN No. 2

ROBOTNICY W PRZEMYSLE STALOWYM I ŻELAZNYM.

Komitet Narodowy do zorganizowania zawodu dnia 20. Lipca 1919, przyjął następujące propozycye, odnoszące się do Organizowania Robotników w przemyśle stalowym i żelaznym, które mają być przedłożone wielkim stalowym korporacyom przy najbliższej sposobności. Propozycye te mają tylko charakter ogólny i mogą być rozwijane, gdy różnorodne organizacye będą formułowały swe przemysłowe wymagania.

1) Prawo do zbiorowego układania umów "umowie układ."
2) Przywrócenie wszystkich ludzi do pracy którzy byli wydaleni na skutek ich czynności jako członkowie i zapłata za czas wydalenia.
3) Ośmiogodzinny dzień pracy.
4) Jeden dzień odpoczynku w tygodniu.
5) Zniesienie 24-ro godzinnej zmiany.
6) Powiększenie płacy dostatecznej do zapewnienia Amerykańskiego — amerykańskiego bytu.
7) Średnia skala płacy odnosząca do wszelkiego robotnictwa.
8) Podwójna płaca za cały nadzwyczajny czas roboty, czy za pracę w niedzielę i święta.
9) Zaprowadzenie systemu spostrzegania opłacanych podatków i subskrypcyi.
10) Traktowanie się zasady starszeństwa przy powiększaniu lub zmniejszaniu sił robotniczych.
11) Zniesienie Unij organizowanych przez Kompanie fabryczne.
12) Zniesienie egzaminacyj fizycznej aplikantów zamierzających się o pracę.

Gdy te reformy zostaną wprowadzone, to przemysł stalowy będzie w całym kraju najlepszem miejscem pracy dla robotników. Lecz aby to osiągnąć potrzebne jest współdziałanie wszystkich pracujących w tej gałęzi. Bądź mężczyzną i spełnij swój obowiązek. Przystąp do Amerykańskiej Federacyi Pracy natychmiast i skarul się tak i swoi współtowarzysze uczynili do same.

VAE SE ACEL MUNCITOR.

1919 évi julius hó 20-án Pittsburgh-ban megtartott gyülésen a vas- és acél munkások nemzetközi bizottsága a következő javaslatot fogadott el, s e nagy acél munkásteknek elő fogja terjeszteni.

Ezen javaslat az ő általános általános s a találás tárgyát képezi a különböző szervezetek esetleges kívánt különleges igényeihez.

1) Jogszerű szabályszerű beleegyezése.
2) A bekövetkezett s Unión működéséhez való viszonyban a szabadság idő fizetésével.
3) Nyolc óral munka idő.
4) Minden hét nap, egy nap pihenőre.
5) A 24 órai óraváltásnak eltörlése.
6) A fizetés emelés, hogy az Amerikai szabályszerű megélhetés biztosítva legyen.
7) Szabályos mérvű fizetés, minden munkavégzés és munkaverete elosztás részére.
8) Különösen fizetés minden több idő után, vasárnapi vagy ünnepnapi munkáért.
9) Czek, minden minden Unión tőzsék és más befizetésekről.
10) Az időbeosztások rend megtartása, előlépése és munkások szükséges felmondások alap elvei.
11) A társaság Unión-ának eltörlése.
12) A gyakorlás jelentkezők orvosi vizsgálatának eltörlése.

Ezen változások életbe léptével az acél ipar, ben egyike a legjobbaknak az egész országban, hanem dolgozni. Emiért a törvény engedelmes az összes van és acél munkások kötelességének. Legyen emiért és tegyen meg a maga részét. Állítsa be az Amerikai Munkás Szövetségbe azonnal és buzdítsa fel munkás felebarátait is, cselekedjenek hasonlóképen.

RADNICI GELJEZA I ČELIJEZA.

Slijedeći prijedlozi su prihvaćeni po Narodnom Komitetu za organizovanje radnika željeza i čelika, a on sjednici u Pittsburghu dne 20. julia 1919, da bude predloženi velikim željeznim korporacijama kojegagod prilikom. Oni prijedlozi su općenitog karaktera, te je predmet za razvitak kada vlastita organizacija pripravi svoja kolektivna potraživanja.

1) Pravo Kolektivna Tegnjava.
2) Povratak zaposlenjenje svih odpuštenih ljudi radi sudjelovanja u Uniju, za plaćanu za izgubljeno vrijeme.
3) Osam satni rad na dan.
4) U sedam dana jedan dan odmora.
5) Ukinuće 24 satne šihte.
6) Povišica plaće dovoljna da zagarantuje Amerikanske pravilne življenje.
7) Prilagjena najveća skrivlje na svaku specijalnost i klasifikaciju radnika.
8) Dvostruka nijena plaće za sav prekovremeni rad i za rad nedjeljom i praznik.
9) Check-Off sistem za kolektovanje članjske prinosa i ujama.
10) Načela starijih da se pridržava za prilikom redukcije, smanjenje ili povećanja radne snage.
11) Ukinuće Kompanijske Junije.
12) Ukinuće Ljekničke Pregledbe za aplikacije za dilo.

Kada bude to u snazi, ove reforme će učiniti željezne industrije jedne od najboljih u zemlji za raditi u istima. Da se postigne to, treba suradnja svih radnika željeza i čelika. Budite čovjek i učinite vaš dio. Pridružite se American Federation of Labor i to odmah, i govorite da i vaši drugovi to isto učine.

Cîteo Lucrătorii de Oțel și Fer

Propunerile următoare, adoptată de Comitetul Național, pentru o organizare lucrătorii de Oțel și Fer, în o ședință din Pittsburgh, July 20,1919, va fi prezentat la marea Corporațiune de Oțel. Aceste propuneri sunt generale în Caracter, și sunt subjectul de dezvoltare când diferențele organizațiuni prepare cererile lor respective în chestii.

1. Dreptul la colectare de Chiliție.
2. Restituirea tuturor oamenilor dimisionați din cauzăriuna Unionul, plătindu-li-se timpul perdut.
3. Zece od opt Ore.
4. O zi de odihnă în 7 zile.
5. Abolirea de 24 ore Schimbul.
6. Adaos în plata suficientă a garanta nutrem de traiu în America.
7. Mărirea drepții a platei pentru toate puterile și Clasificarea de muncitori.
8. Plata dublă pentru lucrările peste timpul de lucrare, Duminecile sau Sărbătorii.
9. Sistemul de a trimite datorii amăgamentul.
10. Principiile de anterioritate de a păstra în menținerea, reducerea și sporirea forțelor de lucrători.
11. Abolirea Companiilor de Unire.
12. Abolirea de Examinare Fizică la aplicanții ce cere lucru.

Când acele reforme vor fi în forță, va fi cea industria Otelului, una din cele mai bune Industrii în Țara, în care muncitorul se lucrează. Spre a îndeplini aceasta se cere cooperațiunea fie cărui lucrător de Fer și Oțel. Fii Bărbat și fă partea ta, lucrează-te la Federațiunea Americană de muncitori în moment, și porunească pe tați prietenii lucrători de a face asemenea.

Herewith is reproduced photographically a bulletin distributed among steel mill workers by the national committee for organizing iron and steel workers. The main purpose in publishing the reproduction is to illustrate the drive which the committee is making to gain the support of mill workers who speak foreign tongues and perhaps no English, or but little. The appeal is printed in six languages. In the opinion of works managers the bulletin can only result in arousing dissatisfaction where but little or none has existed, and may stir forces which the union leaders themselves may find difficult to control. The very general character of the so-called propositions to be submitted to mill managers tend to create an impression in the uneducated mind that it is laboring under conditions which call for correction when such may not be the case. Taken as a whole these general propositions make it difficult to say whether men or employers are to govern.

Lake Ore Movement in July

Shipments of Lake Superior ore from upper Lake ports in July were 9,173,429 gross tons, or about 1,500,000 tons less than those for July, 1918. The total of this season's shipments to Aug. 1 was 25,181,848 tons, which compares with 29,608,933 tons to Aug. 1, 1918. The shipments by ports in July and for the season in 1919 and 1918 are as follows. Marquette and Two Harbors show the largest falling off:

	July, 1918	July, 1919	To Aug. 1. 1918	To Aug. 1. 1919
Escanaba	1,109,511	1,007,036	2,842 877	2,421,563
Marquette	630,341	443,850	1,684,019	891,726
Ashland	1,337,047	1,176,553	3,373,015	2,944,845
Superior	2,352,679	2,244 907	6,040,234	5,486,468
Duluth	3,636,948	3,122,098	9,913,087	9,821,136
Two Harbors	1,592,677	1,178,985	4,744,591	3,616,110
Totals	10,659,203	9,173,429	29,608,933	25,181,848
Decrease, 1919		1,485,774		4,427,085

The receipts of Lake Superior iron ore at Lake Erie ports in the month of July were 7,090,666 tons, against 8,311,629 tons in July, 1918. Season shipments at the end of July to Lake Erie ports were 18,496,231 tons against 21,896,414 tons in the season of 1918 up to Aug. 1. The balance of ore stocks on Lake Erie docks Aug. 1 was 7,069,893 tons, against 7,228,721 tons on Aug. 1, 1918.

The receipts of ore in July in the Chicago district, including docks at Indiana Harbor, Gary and South Chicago, were 1,626,039 tons. The receipts at these docks for the season to Aug. 1 were 4,467,089 tons. The July receipts at Lake front furnaces located on Lake Erie were 1,554,908 tons against 1,640,846 tons in July, 1918. To Aug. 1, the furnaces located on Lake Erie had received 4,314,269 tons against 4,239,400 tons to Aug. 1, 1918.

Tin Plate Exports in June

WASHINGTON, Aug. 12—Tin plate exports from the United States showed a variety of destination in June, 1919. The largest single item, 9,139,719 lb., valued at $707,548, went to China; with Canada—8,560,310 lb., valued at $576,499—a close second. British India was third and Japan fourth. The figures for British India were 5,758,322 lb. and $442,062 and for Japan 5,232,968 lb. and $426,642. To Hongkong shipments totaled $274,319 in value; to Brazil, $185,572; to Argentina, $127,067; to Italy, $110,020, and to England, $96,189.

Onondaga Steel to Expand

The Onondaga Steel Co., Syracuse, N. Y. has increased its capital stock from $150,000 to $1,000,000 and plans several additions to the plant. They include an annealing plant 40 x 160 ft., an 80 ft. extension to the mill building and several smaller buildings. The increased space is expected to double the present working force. Samuel S. Buckley is president.

Through taking over the Lock Haven Mining Co., Inc., the Lock Haven Fire Brick Co. has obtained valuable coal and block flint clay. The site is near that of the first blast furnace in Pennsylvania at Farrandsville. G. T. Stowe, the son of C. B. Stowe, president Stowe-Fuller Co., fire brick, Cleveland, is now secretary of the Lock Haven Fire Brick Co.

The plant of the Hamilton Otto Coke Co., Hamilton, Ohio, will be sold on the premises at public auction Sept. 17. The Efron Co., auctioneer, Cincinnati, will have charge of the sale.

Iron and Steel Markets

DISTURBING FACTORS

Dock Strike and Other Labor Troubles

Output and New Buying Keep Up and Exports Are Well Sustained

The stoppage of the Lake Superior ore movement by the strike at upper Lake docks for a 30 per cent advance in wages, the prospect of higher railroad freight rates in line with the expected wage increase to railroad workers and the car shortage due to the railroad shopmen's strike have caused producers of iron and steel to adopt a conservative selling policy. The threat of a strike in Central Western steel plants, while not ominous, is not disregarded.

An advance of 75c. to $1 a ton has been asked by several producers of Southern pig iron, indicating that supply and demand are working in the seller's favor. Blowing in of Northern merchant furnaces continues and seven are scheduled to resume in the Central West, but the volume of sales is well maintained.

Export pig iron inquiry in New York is larger, the total for Holland, Scandinavia, Belgium, Japan, Italy and the United Kingdom being more than 50,000 tons. Freights to Great Britain are down to $10 from Gulf ports, and 5000 tons of foundry iron has been sold to British consumers, while 25,000 tons of basic iron for the British Isles is under negotiation.

Again Lorraine basic pig iron has figured in the British market, having sold at 165s., or about $35.50, at Scottish port, or considerably less than the delivered price of American iron. Coal output in Great Britain has fallen off nearly 50 per cent since mid-July and some blast furnaces in Wales and in the Midlands have been forced to bank. Steel prices in England have advanced 5s. to 20s. per ton, according to late cables, and economic and financial conditions are increasingly adverse.

In recent sales of 50,000 tons of basic iron in northern Ohio to two consumers a concession of $1 a ton was made on a part of the metal, a deal for steel being involved; on another lot 50c. below the regular price was done.

Leading steel manufacturers are not disposed to ask higher prices on major products for this year's delivery, but there is an upward tendency, and in some cases an actual advance, in galvanized sheets, nuts, bolts and rivets, and in boat spikes and cut nails.

The Carnegie Steel Co. is operating 46 of its 59 blast furnaces, 97 per cent of its ingot capacity and 80 to 85 per cent of finishing capacity. In the Chicago district Gary and South Chicago are operating but four blast furnaces each, steel plant operations are much reduced, and plate mills, sheet mills and rail mills are shut down, all due to the railroad shopmen's strike. Independent mills there are still running. At Cleveland, where recognition of a local union is one demand, the American Steel & Wire Co. has all its blast furnaces and steel works idle.

Steel ingot production in July was 2,984,856 gross tons, the daily rate increasing to 114,802 tons, as against 105,639 tons a day in June, an increase of 8.7 per cent. July output was thus at the rate of 35,500,000 tons per year, or 17 per cent less than the average rate for last year.

The new uncertainties in the labor outlook are checking sales for the late months of the year. Not that buyers are withdrawing, but that sellers need better assurance as to their costs.

The Railroad Administration will open bids on 100,000 tons of rails on Aug. 16. Its real awards may be several times that amount, but the old expedient is resorted to of minimizing the amount of business in sight.

The bulk of 8000 tons of plates bought by the Pennsylvania Railroad was put through at 2.50c., but the full price of 2.65c. was charged for lighter gauges. Four mills divided the 6000 tons bought by the Baldwin Locomotive Works for the 150 locomotives for Poland.

Exporters find some indications that mills incline to domestic business in the old opportunist way, as the volume increases, and to the exclusion of export orders. Yet repeat orders are coming here from some countries which would buy British steel if on anything like even terms.

A sale of 2000 to 3000 tons of British ferromanganese made at close to $100, Baltimore, is significant, indicating that domestic producers are to be more closely pressed than has seemed likely.

Old material, particularly steel, has eased off as dealers' activities have subsided, and there has been little support from consuming buyers.

Shipments of Lake Superior ore from upper Lake ports were 9,173,429 gross tons, or about 1,500,000 tons less than those for July, 1918. To Aug. 1 the season's shipments were 25,181,848 tons, which compares with 29,608,933 tons to Aug. 1, 1918. There was a large amount of ore on the docks at the opening of navigation and blast furnace yards were unusually full of ore. These conditions preclude a serious shortage of ore even though the dock strike should continue for some time.

Pittsburgh

PITTSBURGH, Aug. 12.

Costs of producing pig iron and steel products are so uncertain, in view of the probability of freight rate advances and higher labor cost, that very conservative selling policies have been adopted by most of the manufacturers in this district. In some lines the mills are booked full or nearly full over the remainder of this year, and they have no desire to commit themselves into next year. A few exceptions have been made, notably in the case of automobile manufacturers, but this was done largely before the demands of the railroad brotherhoods for higher wages made an advance

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Deliverv

Pig Iron, Per Gross Ton:	Aug. 12, 1919	Aug. 5, 1919	July 15, 1919	Aug. 13, 1918
No. 2 X, Philadelphia‡	$29.60	$29.60	$29.10	$34.40
No. 2, Valley furnace†	26.75	26.75	26.75	33.00
No. 2, Southern, Cin'ti†	**31.10**	28.35	28.35	36.60
No. 2, Birmingham, Ala†	**27.50**	26.75	24.75	33.00
No. 2, furnace, Chicago*	26.75	26.75	26.75	33.00
Basic, del'd, eastern Pa.	26.60	26.60	26.00	32.90
Basic, Valley furnace	25.75	25.75	25.75	32.00
Bessemer, Pittsburgh	29.35	29.35	29.35	36.60
Malleable, Chicago*	27.25	27.25	27.25	33.50
Malleable, Valley	27.25	27.25	27.25	33.50
Gray forge, Pittsburgh	27.15	27.15	27.15	33.40
L. S. charcoal, Chicago	31.75	31.75	31.75	37.85
Rails, Billets, etc., Per Gross Ton:				
Bess. rails, heavy, at mill	45.00	45.00	45.00	55.00
O.-h. rails, heavy, at mill	47.00	47.00	47.00	57.00
Bess. billets, Pittsburgh	38.50	38.50	38.50	47.50
O.-h. billets, Pittsburgh	38.50	38.50	38.50	47.50
O.-h. sheet bars, P'gh	42.00	42.00	42.00	51.00
Forging billets, base, P'gh.	51.00	51.00	51.00	60.00
O.-h. billets, Phila	42.50	42.50	42.50	51.30
Wire rods, Pittsburgh	52.00	52.00	52.00	57.00
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.745	2.745	2.595	3.73
Iron bars, Pittsburgh	2.75	2.75	2.75	3.50
Iron bars, Chicago	2.62	2.62	2.50	3.50
Steel bars, Pittsburgh	2.35	2.35	2.35	2.90
Steel bars, New York	2.62	2.62	2.62	3.145
Tank plates, Pittsburgh	2.65	2.65	2.65	3.25
Tank plates, New York	2.92	2.92	2.92	3.495
Beams, etc., Pittsburgh	2.45	2.45	2.45	3.00
Beams, etc., New York	2.72	2.72	2.72	3.245
Skelp, grooved steel, P'gh.	2.45	2.45	2.45	2.90
Skelp, sheared steel, P'gh.	2.65	2.65	2.65	3.25
Steel hoops, Pittsburgh	3.05	3.05	3.05	3.50

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Aug. 12, 1919 Cents	Aug. 5, 1919 Cents	July 15, 1919 Cents	Aug. 13, 1918 Cents
Sheets, black, No. 28, P'gh.	4.35	4.35	4.35	5.00
Sheets, galv., No. 28, P'gh.	5.70	5.70	5.70	6.25
Wire nails, Pittsburgh	3.25	3.25	3.25	3.50
Cut nails, Pittsburgh	**4.925**	4.25	4.25	4.00
Fence wire, base, P'gh.	3.00	3.00	3.00	3.25
Barb wire, galv., P'gh.	4.10	4.10	4.10	4.35
Old Material, Per Gross Ton:				
Carwheels, Chicago	$26.00	$26.00	$23.25	$29.00
Carwheels, Philadelphia	24.50	24.50	23.00	29.00
Heavy steel scrap, P'gh.	*21.50*	22.00	19.50	29.00
Heavy steel scrap, Phila.	*19.50*	20.00	19.00	29.00
Heavy steel scrap, Ch'go.	*20.50*	21.00	18.50	29.00
No. 1 cast, Pittsburgh	23.50	23.50	19.00	29.00
No. 1 cast, Philadelphia	**25.00**	24.00	22.00	29.00
No. 1 cast, Ch'go, net ton	24.00	24.00	22.00	29.00
No. 1 RR. wrot, Phila	26.50	26.50	25.00	34.00
No. 1 RR. wrot, Ch'go, net	*20.50*	21.00	17.00	29.75
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	**$4.00**	$3.90	$4.00	$6.00
Furnace coke, future	4.12	4.12	4.12	6.00
Foundry coke, prompt	5.00	5.00	5.00	7.00
Foundry coke, future	**5.25**	5.00	5.00	7.00
Metals, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	*22.00*	23.00	22.00	26.00
Electrolytic copper, N. Y.	*21.50*	22.75	21.75	26.00
Spelter, St. Louis	7.25	7.40	7.65	8.50
Spelter, New York	*7.60*	7.75	8.00	8.80
Lead, St. Louis	5.50	5.50	5.25	7.75
Lead, New York	*5.60*	5.75	5.50	8.05
Tin, New York	70.00	70.00	70.00	94.00
Antimony, Asiatic, N. Y.	*9.00*	9.37½	8.37½	13.00
Tin plate, 100-lb. box, P'gh	$7.00	$7.00	$7.00	$7.75

in freight rates almost a certainty. Further complications are seen as a possible outcome of the strikes on the ore docks at the head of the Great Lakes; also in the car shortage, which has developed into a serious problem as a result of the strikes of railroad shop workers. The threat of a strike in the steel plants in the Pittsburgh district does not now appear so ominous, but nevertheless it is being reckoned with as a possibility.

In view of these conditions, some of which have arisen within the past week, steel manufacturers who are sold up for two or three months ahead or even longer do not feel that there is any wisdom, from their point of view, in committing themselves further and in several lines, principally pipe, wire products, bars and sheets, some makers are out of the market, or virtually so. The leading producer of semi-finished steel is making no forward commitments for ingots, billets, slabs and sheet bars. Both steel and pig iron makers have repeatedly turned down requests for contracts running into next year. A wire manufacturer, at the urgent solicitation of a valued customer, agreed to reserve a place on the mill schedule for first quarter, but would not definitely book an order at either a given price or an unnamed price for that delivery.

While higher prices are being named on some products, principally on galvanized sheets, bolts, nuts and rivets, boat spikes and cut nails, there is apparently no disposition among the leading steel manufacturers to advance prices on major products this year, it being the general observation that higher steel prices would naturally result in demands for higher wages from steel workers and thus further complicate the cost of living crisis. However, if labor gets higher wages, advances in selling prices will be a logical sequence. Steel manufacturers are averse to taking the first step in this direction.

Production continues at as high a rate as conditions will permit. The Carnegie Steel Co. is operating 46 of its 59 blast furnaces, 97 per cent of its ingot capacity, while its finishing capacity is being operated at about 80 to 85 per cent. The average for this district on most lines is from 80 to 95 per cent.

Pig Iron.—Selling of foundry iron continues fairly active, but basic and Bessemer are quiet. There are no large inquiries for steel making iron from this or nearby districts, but there are two from the St. Louis district, one for 10,000 tons and the other for 2500 tons of basic for delivery over the remainder of this year. The Standard Sanitary Mfg. Co. has bought 4500 tons of foundry iron for delivery in the fourth quarter, the prices paid being $26.75 for 1.75 to 2.25 silicon and $28 for 2.25 to 2.75 silicon, f.o.b. Valley furnaces. The Westinghouse Airbrake Co. has bought from 10,000 to 12,000 tons for delivery this year and is reported to have paid the same prices. The Westinghouse Electric & Mfg. Co. is in the market for its first quarter requirements, but some sellers are not inclined to quote for that delivery, believing that costs of production may go higher and that selling prices will necessarily advance also. The uncertainty as to coke supply and coke prices, together with the probability of freight rate advances some time this fall, and now the further complication as to ore supply caused by strikes on the ore docks at the head of the Lakes, combine to cause pig iron makers to go slow in selling for next year. There is considerable inquiry for that period, and furnaces could do a good business for first quarter and first half were they inclined to sell. On small lots of foundry iron merchants find it possible to obtain premiums of 50c. or $1 a ton, and in one instance a furnace sold several tonnages of foundry iron, 1.75 to 2.25 per cent silicon, at $28, an advance of $1.25 over the March 21 schedule, but this seller then reduced its price to $26.75. In the month considerable new basic and Bessemer making capacity will come into blast. Furnaces which are now in or soon will be in include Weirton, Struthers, Shenango, Sharpsville, Ella, Claire, Alice and Dover, these having a combined capacity of about 70,000 tons of basic and 18,000 tons of Bessemer per month. The Clinton furnace, which was operating

on basic and foundry, had gone out of blast and the Cherry Valley furnace will blow out on Aug. 20. Prices are firm and we quote:

Basic pig iron, $25.75; Bessemer, $27.95; gray forge, $25.75; No. 2 foundry, $26.75; No. 3 foundry, $26.25, and malleable, $27.25; all per gross ton at Valley furnaces, and freight rate for delivery in the Cleveland and Pittsburgh districts being $1.40 per ton.

Ferroalloys.—There is very little activity in ferromanganese. Some small lots are being sold, the domestic price usually quoted being $110, delivered. The price on British ferromanganese delivered in the Pittsburgh district is about $109, and domestic producers are meeting this price, when necessary to prevent orders from going abroad. For 50 per cent ferrosilicon $85 is asked for prompt delivery, but for forward shipment $90 or more a ton is asked. No propositions are being entertained for next year's shipment. Prices of silvery iron and Bessemer ferrosilicon continue without change, quoted below, notwithstanding the idle capacity at Jackson, Ohio, due to strikes.

We quote 78 to 82 per cent domestic ferromanganese at $110 delivered, with a reduction of $1.50 to $1.75 per unit for lower percentages. We quote 50 per cent ferrosilicon at $85, and 18 to 22 per cent spiegeleisen at $32 to $35, delivered. Prices on Bessemer ferrosilicon are: 9 per cent, $47.75; 10 per cent, $49.75; 11 per cent, $53.05; 12 per cent, $56.35. We quote 6 per cent silvery iron, $36.75; 7 per cent, $38.50; 8 per cent, $40.25; 9 per cent, $42.25, and 10 per cent, $44.75. About $3 per gross ton advance is charged for each 1 per cent silicon for 11 per cent and over. All the above prices are f.o.b. maker's furnace, Jackson or New Straitsville, Ohio, which have a uniform freight rate of $2.90 per gross ton for delivery in the Pittsburgh district.

Semi-finished Material.—The largest producer of ingots, billets, sheet bars and slabs is out of the market, being comfortably filled up. The scarcity of sheet bars is quite marked. An Ohio sheet manufacturer, in the market for 18,000 tons of sheet bars, is reported to have had extreme difficulty in finding a producer willing to sell.

We quote 4 x 4 in. soft Bessemer and open-hearth billets at $38.50, 2 x 2 in. billets at $42; sheet bars, $42; slabs, $41, and forging billets, $51 base, all f.o.b. at mill, Pittsburgh or Youngstown.

Plates.—There is room for considerable improvement, but the time is believed to be near at hand when some of the railroads must come into the market to make necessary car repairs if means can be found to finance such purchases. More ship tonnage is also expected to develop within the near future. Some of the mills have a fair amount of plate business on hand, but the plate situation is still the weakest spot in the steel market. Less is heard of price concessions. We quote ¼-in. and heavier tank plate at 2.65c., Pittsburgh.

Structural Material.—Fabricators are figuring on quite a good many building projects, but there has been a lull in the past week in the number of structural jobs placed. The Wyckoff Drawn Steel Co., First National Bank Building, Pittsburgh, which will build a new steel mill at Economy, Pa., is in the market for mill buildings. The orders of the Youngstown Sheet & Tube Co., placed with the McClintic, Marshall Co., has been increased from 800 to 2000 tons. The American Bridge Co. has taken 1400 tons for a power-house for the Detroit Edison Co. Demand for structural shapes is not showing improvement over recent weeks, and most of the mills could easily handle more business. We quote plain material at 2.45c., base, Pittsburgh.

Sheets.—From the viewpoint of the mills the sheet situation is all that could be desired. One company reports that it has never booked so much business with so little effort. The leading interest is operating its heavy blue annealed capacity at about 75 per cent, and all other sheet mills at about 85 per cent, and could do better if more labor and steel were available. Mills which depend upon outside sources for sheet bars are having difficulty in obtaining a sufficient supply. About the best than can be done on deliveries of sheets by some mills is three months. Others are well filled up for the remainder of the year and are not anxious for business. Specifications on contracts are coming in freely, many consumers over-specifying. Prices are firmer, and on galvanized sheets sales have been made at $5.80 and $5.90, $2 to $4 above the schedule of March 21. A few of the independent makers believe the time is ripe for a general advance in prices, but there is opposition in other quarters to any advance which might intensify the cost of living crisis by injecting demands for higher wages into the situation. Prices on sheets are given on page 475.

Tin Plate.—Demand for all tin mill products continues very strong. There is a worldwide demand for tin plate which the mills are having difficulty in satisfying. A fruit crop on the Pacific Coast far exceeding expectations and unusually large sardine catches have brought out urgent demands from canners of these commodities, the tin plate which had been contracted for these purposes falling far short of the present requirements. The demand for tin plate is so large that users of black plate are not getting all that they desire. The demand for terne plate is fairly good, but not on a par with that for tin plate. Export business in tin plate is being heavily booked. The leading producer of tin mill products is operating at about 93 per cent and is well sold up ahead. Production tin plate for domestic use is firm at $7 per base box. There has been some cutting of prices for export, but less is now heard of such concessions. Prices of stock items range from $6.50 to $6.75, Pittsburgh.

Iron and Steel Bars.—The steel bar situation is very strong and several producers are not anxious for business in soft steel bars at 2.35c., in which they say there is no profit, but are booking orders in special bars which take liberal extras. Bar iron is reported firm at 2.75c., Pittsburgh.

We quote steel bars, rolled from billets, at 2.35c., and from old steel rails, 2.45c. Pittsburgh mills rolling iron bars quote at 2.75c., Pittsburgh, plus full freight rate to point of delivery.

Wire Rods.—One mill which is out of the market this week turned down offers of 4500 tons of wire rods for export. Most of the mills need all of their rods for their own finishing departments. Makers quoting $57 on rods for export to Canada report losing the business as Canadian consumers say they are still able to obtain supplies at $52. Prices are given on page 475.

Wire Products.—Some of the leading independent makers are virtually out of the market inasmuch as they are quoting $5 higher on nails and $2 higher on other wire products than is quoted by the leading interest. These mills are not anxious for business, being sold up as far ahead as they care to commit themselves in view of the uncertainty as to future production costs. Prices quoted by the leading interest are given on page 475.

Hoops and Bands.—Demand for hoops and bands continues fairly good, automobile makers taking considerable rim stock. As mentioned last week one maker has virtually withdrawn from the market by quoting an advance of $9 a ton, but other makers have not followed suit. We quote hoops and bands at 3.05c., Pittsburgh, with usual extras.

Shafting and Screw Stock.—Specifications are coming in more freely. Price concessions are said to be less frequently granted, most makers adhering strictly to a discount of 28 per cent off in carloads and 23 per cent off in less than carloads, f.o.b. Pittsburgh.

Spikes.—One local maker has advanced the price of boat spikes $3 a ton, or to $4 per 100 lb. in carload lots of 200 kegs or more. Another maker is still quoting $3.85, but is taking practically no business.

We quote standard spikes, 9/16 x 4½ in., and also small spikes, $3.35 base per 100 lb. in carload lots of 200 kegs or more, plus usual extras. Boat and barge spikes, $3.85 per 100 lb. in carload lots of 200 kegs or more.

Hot Rolled Strip Steel.—Some of the mills are pretty well sold up over the remainder of this year and, except in the case of a very few large customers, such as automobile manufacturers, are not making any contracts running into next year. A few of the automobile makers who have covered, are more concerned about deliveries than prices. One or two leading makers profess not to be anxious for more business for this year, but they are taking care of regular customers. Mills

are operating at about 80 per cent. Orders on hand justify 100 per cent operation, but labor shortage is the restricting factor. A shortage of cars is also being felt; box cars, which are preferable for shipping strip steel, are not always obtainable and gondola cars often have to be used. Price concessions are disappearing and most sellers now adhere strictly to the 3.30c base for deep stamping and drawing quality.

Cold Rolled Strip Steel—Demand is not so active as for hot rolled strip steel, but a very fair business is being done. Some consumers who have not been heard from for two or three years are now coming into the market for both cold and hot rolled strips. Mills are operating at about 75 to 80 per cent of capacity.

We quote cold-rolled steel at $5.65 base per 100 lb., f.o.b. Pittsburgh, for 1½ in. and wider, 0.100 in. and thicker hard tempered in coils 0.20 carbon and under. Boxing charge 25c. per 100 lb.

Boiler Tubes.—Merchant demand for boiler tubes is getting better, but the railroads and locomotive manufacturers are not buying extensively. Discounts are given on page 475.

Rails.—The Railroad Administration has asked for bids by Aug. 16 on 100,000 tons of heavy rails. A fair amount of business in heavy rails from street railroads, industrial plants, etc., has recently been booked, mostly in small tonnages, and the leading interest is operating its mills at part capacity on rails and is devoting some of the remaining capacity to rolling billets and sheet bars. Light rail demand continues fairly good and prices are firmer on the basis of 2.45c., Pittsburgh.

Bolts and Nuts.—An advance of 10 to 15 per cent on bolts became generally effective last week, though one or two makers announced the advance as of Aug. 1. The new discounts are given on page 475.

Rivets.—Makers of small rivets have announced an advance in prices in line with the advance on large rivets, which went into effect on Aug. 1. We now quote ¼, 5/16 and 7/16-in. rivets at 60 and 10 off list. Demand continues fairly good, most makers operating to about 80 per cent of capacity. Discounts are given on page 475.

Cut Nails.—The principal maker of cut nails has recently made two advances which make the current quotation 4.75c., Steubenville, Ohio, in carload lots and 4.85c. in less than carload lots, to which is added a freight rate of 17½c. for delivery in Pittsburgh. This seller is turning down nearly all inquiries for carload lots and with few exceptions will sell only less than carloads. We quote cut nails at 4.925c. in carloads and 5.025c., Pittsburgh, in less than carloads.

Iron and Steel Pipe.—Pipe makers have within the past few days turned down several inquiries for good-sized lots of oil country goods, for which the demand continues unabated. Unable to obtain deliveries from the mills, these consumers are reported to have placed their orders with distributers. Several of the mills have all of the lap weld business that they care to take for delivery this year and they will not commit themselves for next year. The demand for butt weld is not so heavy but is improving. Although one independent maker recently advanced prices on tubular goods the disposition of the leading interest and some of the independents is to hold prices where they are for the remainder of this year. Discounts on iron and steel pipe are given on page 475.

Coke.—The weakness in furnace coke which has been apparent for the last few weeks is disappearing and it no longer seems possible to buy below $4 a ton. All of the leading sellers are holding firm for this price or even higher. Within the past week $4.15 has been paid on a fairly large tonnage. These prices apply to spot shipments, contracts being based very largely on the price of pig iron and averaging about $4.12. The betterment in the furnace coke situation is due largely to the absorption of recent surplus production, an important factor being the increase this month in the number of blast furnaces in operation. There has been a blowing out also of coke ovens as some companies which produce both coal and coke declare that they find it more profitable to sell coal than coke at the prices now ruling on the latter. Foundry coke also shows increasing strength, though its position has been firmer than that of furnace coke for some time. Good 72-hr. coke is not now easily obtainable at $5 for prompt delivery, some sellers asking and getting $5.25 and $5.50, while contract prices range from $5.25 to $5.75. There is no disposition on the part of coke makers to enter into contracts for next year owing to uncertainties as to the coal situation and the supply and cost of labor. The possibility of an advance in rail freight rates is also an important element in the situation. Output of coke in the upper and lower Connellsville regions for the week ended August 2 is estimated at 209,100 tons, an increase of 19,075 tons over the preceding week.

Old Material.—A change has come over the scrap market within the past week. Whether this is due to the demands of the railroad brotherhoods for higher wages, with the possibility that a wage increase would mean an advance in freight rates is not altogether apparent, but at any rate most of the consumers in the Pittsburgh district who have been actively buying for weeks dropped out of the market almost simultaneously with the announcement of the railroad men's demands. During the past week there has been very little buying interest among consumers and prices have weakened, though in some instances they are not quotably lower. Dealers have not been frightened, however, by the present attitude of the mills and are holding their scrap in yards in the expectation that several large consumers will be in the market again within a few weeks. There is an embargo on shipments of scrap to Monessen and some lots of No. 1 heavy melting steel on cars have been sold at slight concessions. We now quote melting steel at $21.50 to $22, the minimum being all that some consumers will pay. We quote as follows:

Heavy steel, melting, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh, delivered	$21.50 to $22.00
No. 1 cast, for steel plants	23.50 to 24.00
Rerolling rails, Newark and Cambridge, Ohio; Cumberland, Md.; Franklin, Pa., and Pittsburgh	22.50 to 23.50
Compressed steel	18.00 to 19.00
Bundled sheet, sides and ends, f.o.b. consumers' mills, Pittsburgh district	16.00 to 16.50
Bundled sheet stamping	16.00 to 16.50
No. 1 busheling	18.00 to 18.50
Railroad grate bars	18.00 to 18.50
Low phosphorus melting stock (bloom and billet ends, heavy plates) ¼ in. and heavier	25.00 to 25.50
Iron car axles	31.00 to 32.00
Locomotive axles, steel	31.00 to 32.00
Steel car axles	28.00 to 29.00
Railroad malleable	20.00 to 20.50
Machine shop turnings	14.00 to 15.00
Cast iron wheels	25.00 to 26.00
Rolled steel wheels	23.00 to 24.00
Sheet bar crop ends (at origin)	23.00 to 24.00
Heavy steel axle turnings	16.00 to 17.00
Heavy breakable casts	21.50 to 22.00
Cast iron borings	15.50 to 16.00
No. 1 railroad wrought	22.00 to 23.50

Iron Reserves in the Orient

The principal iron works in the Orient are reported by F. T. Eddingfield, in charge of reports on the iron and steel situation for the Bureau of Mines, as follows: Taoshung mine, containing 20,000,000 to 30,000,000 tons of ore, supplies the Oriental Ironworks Co. Taiyeh mine, containing about 50,000,000 tons, supplies the Government Ironworks at Yawata, Japan, also furnaces near the mine to supply the Yawata Ironworks with pig iron. At Anshanchan Ironworks of the South Manchuria Railway Co., furnaces are being set up and further enlargements are proposed. Large deposits of iron ore are reported in this neighborhood. Penchihfu Coal & Iron Co. has blast furnaces and electric furnaces. They are reported to have a large supply of coking coal. Chienerhpu Iron Works, Chosen (Korea), operate two blast furnaces.

Chicago

CHICAGO, Aug. 12.

Although the railroad shopmen are returning to work at most points in the West, they are still out at Chicago, and in defiance of their own national officers refuse to return unless their demands are granted. Independent mills are still operating, but the leading interest's works at Gary and South Chicago are seriously crippled. These plants are now operating but four blast furnaces each. Out of 24 open hearth furnaces at South Chicago, 16, including 2 duplex furnaces, are still working. At Gary only 14 out of 44 furnaces are operating. In addition, the plate mills at both plants, the sheet mills and the rail mills have shut down. The structural and bar mills are still running and their output is being piled on the ground. The Joliet and Milwaukee works have not been seriously affected by the strike.

Despite labor difficulties an encouraging volume of business is being closed. An export inquiry for 10,000 tons of plates has been received here, but it has not aroused much interest because the prospective purchasers want concessions. Although the local building trades lockout is still in effect, a good volume of structural business is being closed. During the past week fabricating awards have been made aggregating about 6000 tons.

The railroad strike and an increasing shortage of cars have impeded shipments of pig iron, but the market continues active. A St. Louis melter is in the market for 10,000 tons of basic, and inquiries for 2000 tons of basic, 2800 tons of foundry and 2000 tons of foundry are before the trade. Scrap is weaker.

Pig Iron.—An increasing car shortage and the strike of railroad shopmen, which is as yet unsettled in Chicago, are making it difficult for consumers to secure deliveries of iron and coke. The demand, however, continues strong. The leading Northern producer will blow in additional furnaces as soon as necessary repairs can be made. Two steel interests in the St. Louis district are in the market for 10,000 tons and 2000 tons of basic, respectively. An Illinois melter is inquiring for 2800 tons of foundry of 2½ per cent silicon and over for second-half delivery and a Wisconsin interest wants 2000 tons of 2.25 to 2.75 per cent silicon. There is an increasing demand for 1920 iron but furnaces are not anxious to take this business. A large manufacturer recently ordered 1000 tons of Southern foundry from a local seller for delivery at Birmingham. Several orders for 500-ton lots of foundry and a few for 100 to 200 tons of malleable have been closed within the past week. Silvery is difficult to obtain. One Jackson County furnace has taken 500 tons for fourth-quarter delivery, subject to a settlement of the strike which recently forced it to blow out. The Red River Tennessee furnace is expected to blow in at any time. Two Southern producers of foundry have advanced prices $1 a ton, making the base quotation $27.75.

The following quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable and steel-making irons, including low phosphorus, which are f.o.b. furnace and do not include a switching charge averaging 50c. per ton:

Lake Superior charcoal, average silicon, 1.50, second half delivery, f.o.b furnace, average freight to Chicago, $2.50 (other grades subject to usual differentials)	$29.25
Northern coke foundry, No. 1 silicon, 2.25 to 2.75	28.00
Northern coke foundry, No. 2 silicon, 1.75 to 2.25	26.75
Northern high-phosphorus foundry	26.75
Southern coke, No. 1 foundry and No. 1 soft silicon, 2.75 to 3.25	34.75
Southern coke, No. 2 foundry, silicon, 2.25 to 2.75	33.00
Southern foundry silicon, 1.75 to 2.25	31.75
Malleable, not over 2.25 silicon	27.25
Standard Bessemer	27.95
Basic	25.75
Low phosphorus (copper free)	40.00
Silvery, 7 per cent	42.05

Ferroalloys.—English producers are now quoting ferromanganese at $100 delivered Atlantic seaboard or about $110, Chicago. As a result domestic prices have declined to about the same level. There is little activity in any of the ferroalloys.

We quote 80 per cent ferromanganese at $110, delivered; 50 per cent ferrosilicon, at $80 delivered; spiegeleisen, 18 to 22 per cent, $35, furnace.

Bars.—The local demand for reinforcing steel has fallen off on account of the labor difficulties, but a large volume of business is being closed in the surrounding states. Specifications and purchases by farm implement manufacturers are also rather liberal with the result that rail carbon and mild steel bar mills have considerable work ahead. The demand for soft steel is particularly strong; a steady stream of inquiries and orders flowing in from a great variety of manufacturers. One rail carbon mill is practically out of the market for the remainder of the year and an important producer of mild steel bars is booked ahead for four months. The railroad inquiries for bar iron mentioned in this column a week ago have been held up indefinitely because of shopmen's strike. An important local mill is now operating at 65 per cent of capacity, which constitutes a marked improvement over the rate at which it has been running since the first of the year. On account of increasing operating costs, two interests have advanced bar iron to 2.48c., Pittsburgh or 2.75c. Chicago the equivalent of $2.60 a ton above the present quotation on mild steel bars.

Mill prices are: Mild steel bars, 2.35c. Pittsburgh, taking a freight rate of 27c. per 100 lb.; common bar iron, 2.62c., Chicago; rail carbon, 2.55c. mill. Jobbers quote 3.37c. for steel bars out of warehouse.

Structural Material.—The building trades lockout has stifled the local demand but an encouraging volume of business continues to develop in other parts of the West. The tie-up of construction in Chicago appears farther away from a settlement than at any time since the lockout was called. Labor leaders announced yesterday that orders have been sent to carpenters' unions throughout the country to suspend work on all projects which are being handled by Chicago contractors. Recent fabricating awards include:

General Motors Corporation, Samson tractor plant, foundry and power house, Janesville, Wis., 1500 tons to A. Bolter's Sons and the Vierling Steel Works, steel to be rolled by Inland Steel Co.

United Verde Copper Co., roaster building and power house, Jerome, Ariz., 1168 tons to Kansas City Structural Steel Co.

Standard Oil Co., coal bins and conveyor bridge, 750 tons to Decatur Bridge Co.

Kohler Co., foundry addition, Kohler, Wis., 500 tons to Worden-Allen Co.

Missouri Pacific Railroad, truss and girder spans, 310 tons to American Bridge Co.

L. F. Beach & Co., store building, Joliet, Ill., 290 tons to Joliet Bridge & Iron Co.

Hill Pump & Valve Co., plant, Chicago, 251 tons to Hansell Elcock Co.

Highway bridges over Canyon Diablo and Little Colorado River for Government, 200 tons to Omaha Structural Steel Co.

Thomas Furnace Co., Milwaukee, pig casting machine, 100 tons to Worden-Allen Co.

Flambeau Paper Co., paper mill, Flambeau, Wis., 175 tons to Milwaukee Structural Steel Co.

New inquiries include:

Michigan State Highway Commission, bascule bridge, Spring Lake Township, near Grand Haven, Mich., 2000 tons.
Whitney Bank addition, New Orleans, 1500 to 2000 tons.
Barr Building, St. Louis, 500 tons.

Sheets.—The demand continues heavy with few mills in a position to take orders for prompt shipment. Most of local capacity of the leading interest is tied up by the railroad strike. The foremost independent has not yet been affected, but because of the hot weather and a shortage of skilled men is operating only 15 out of 18 mills.

Mill quotations are 4.35c. for No. 28 black, 3.55c. for No. 10 blue annealed, and 5.70c. for No. 28 galvanized.

Jobbers quote Chicago delivery out of stock; No. 10 blue annealed, 4.57c.; No. 28 black, 5.62c., and No. 28 galvanized, 6.97c.

Plates.—The plate mills of the leading interest have suspended operation on account of the railroad shopmen's strike. The mill of the foremost independent is as yet unaffected. The demand continues strong from domestic sources and consequently foreign tonnage offered at lower than the prevailing prices is not arousing much interest. Prominent Japanese buyers are in

the market for about 10,000 tons but they desire concessions which the local interests are not disposed to grant. An inquiry for about 2000 tons of plates and shapes to be used for car repairs is still before the trade and a car builder in the St. Louis district is asking for figures on 15,000 tons to be used as a basis for quoting on a number of current inquiries for freight cars. A steady flow of specifications is coming from the Pacific Coast shipyards. Unless local plate mills are able to resume operation soon, it is feared that vessel construction will be seriously impeded. An Eastern interest selling in this district is actively soliciting business, as its present bookings by no means tax its capacity.

The mill quotation is 2.65c., Pittsburgh, the freight to Chicago being 27c. per 100 lb. Jobbers quote 3.67c. for plates out of stock.

Wire Products.—An eastern seller in this district is out of the market on nails. The leading interest is taking no new orders of any kind except to meet pressing needs of old customers and has not yet raised its prices to conform with the advances recently announced by independent mills. For mill prices see finished iron and steel, f.o.b. Pittsburgh, page 475.

Rails and Track Supplies.—The leading interest has closed three contracts with mines for 500 tons of light rails each and a fourth for 200 tons. A fair tonnage of track fastenings is being booked and small orders for rails continue to come from independent carriers.

Standard railroad spikes, 3.35c. Pittsburgh. Track bolts with square nuts, 4.35c. Pittsburgh. Steel tie plates and iron angle bars, 2.75c. Pittsburgh and Chicago; tie plates, iron, 2.90c., f.o.b. makers' mills. Light rails, 2.45c. f.o.b. makers' mills, with usual extras.

Bolts and Nuts.—Despite the recent advance in rivets, bolts and some grades of nuts business continues unabated. Agricultural implement manufacturers are commencing to order heavily for their last half requirements. While some producers catering to the railroads are running slack, most bolt and nut makers are having difficulty in keeping up with the demand. One important manufacturer is receiving orders, exclusive of specifications on contracts, at the rates of twice its capacity. Mill quotations for delivery in this territory were given in last week's issue. Jobbers quote:

Large structural and ship rivets.....$3.90 base
Large boiler rivets.....$4.00
¾ in., 5/16 in. and 7/16 in. diam.....60-5 per cent off list
Machine bolts, hp. nuts, ⅜ in. x 4 in.:
Smaller and shorter, rolled threads.....60 per cent off list
Cut threads.....50-10 per cent off list
Larger and longer sizes.....45-5 per cent off list
Machine bolts c.p.c. and t. nuts, ⅜ in. x 4 in.:
Smaller and shorter.....40-10-5 ped cent off list
Larger and longer.....40 per cent off list
Carriage bolts, ⅜ in. x 6 in.:
Smaller and shorter, rolled threads...50-10 per cent off list
Cut threads.....50 per cent off list
Larger and longer sizes.....40-5 per cent off list
Lag bolts.....60 per cent off list
Plow bolts, Nos. 1, 2 and 3.....50-5 per cent o list
Hot pressed nuts, sq. blank.....3.10c. per lb. off list
Hot pressed nuts, hex. blank.....3.10c. per lb. off list
Hot pressed nuts, sq. tapped.....2.85c. per lb. off list
Hot pressed nuts, hex. tapped.....2.85c. per lb. off list
C.p.c. and t. sq. and hex. nuts, blank....3.10c. per lb. off list
C.p.c. and t. sq. and hex. nuts, tapped.....2.85c per lb. off list
Semi finished hex. nuts:
⅜ in. and larger.....70 per cent off list
7/16 in. and smaller.....75-10 per cent off list
Stove bolts in packages.....75-10 per cent off list
Stove bolts in bulk.....75-10-2½ per cent off list
Tire bolts.....60-10 per cent off list

The above discounts are from Aug. 4, 1919.
All prices carry standard extras, Pittsburgh basis.

Structural rivets, 4.72c.; boiler rivets, 4.82c.; machine bolts up to ⅞ x 4 in., 50 and 5 per cent off; larger sizes, 40 and 5 off; carriage bolts up to ⅞ x 6 in., 45 and 5 off; larger sizes, 30 and 10 off; hot pressed nuts, square tapped and hexagon tapped, $1.85 off; coach or lag screws, gimlet points, square heads, 50 and 5 per cent off. Quantity extras for nuts are cancelled.

Old Material.—Most prices have declined 50c to $1 a ton on account of the uncertain labor situation. Considerable Government and railroad material is being offered but dealers are not disposed to take it under present conditions. The highest bid on 3100 tons of billets offered by the Ordnance Department last week was $25.01 per gross ton and this was rejected. On Aug. 18 bids will be taken on 31,270 tons of open-hearth sheets and stove-pipe stock. On Aug. 22 tenders will be received again on 15,000 tons of billets, the first bids on which were rejected. On Aug. 21 figures will be taken on 920 tons of screw stock and on Aug. 19 bids will be received on 38 tons of terne plate. The Great Northern is offering 2000 tons; the Northern Pacific, 1000 tons and the Soo Line 500 tons. An encouraging development from the standpoint of dealers is an inquiry put out on behalf of English buyers now in Canada asking for quotations for Montreal or some other Atlantic port on 40,000 tons of low phosphorus steel scrap.

Per Gross Ton

We quote delivery in buyers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Iron rails	$26.00 to $27.00
Relaying rails	35.00 to 45.00
Carwheels	26.00 to 27.00
Steel rails, rerolling	29.00 to 30.00
Steel rails, less than 3 ft.	23.50 to 24.00
Heavy melting steel	20.50 to 21.50
Frogs, switches and guards cut apart	20.50 to 21.50
Shoveling steel	20.50 to 21.00

Per Net Ton

Iron angles and splice bars	$24.00 to $25.00
Steel angle bars	20.50 to 21.00
Iron arch bars and transoms	26.00 to 27.00
Iron car axles	29.00 to 30.00
Steel car axles	26.50 to 27.00
No. 1 busheling	17.00 to 17.50
No. 2 busheling	12.50 to 13.00
Cut forge	19.50 to 20.00
Pipes and flues	16.75 to 17.25
No. 1 railroad wrought	20.50 to 21.50
No. 2 railroad wrought	19.50 to 20.00
Steel knuckles and couplers	21.00 to 21.50
Coil springs	21.50 to 22.00
No. 1 cast	24.00 to 25.00
Boiler punchings	23.00 to 23.50
Locomotive tires, smooth	22.50 to 23.00
Machine shop turnings	10.00 to 10.50
Cast borings	12.25 to 13.25
Stove plate and light cast	21.50 to 23.50
Grate bars	21.00 to 21.50
Brake shoes	20.00 to 21.00
Railroad malleable	20.00 to 21.00
Agricultural malleable	19.50 to 20.50
Country mixed	16.00 to 17.00

Cast Iron Pipe.—Prices have been advanced $2 a ton on all sizes up to 16 in. inclusive, and the extra charge for Class A and gas pipe has been raised from $1 to $2. New inquiries include:

Chicago, 1700 tons, bids to be in Aug. 20.
Edgeley, N. D., 350 tons, bids to be in Aug. 18.
Dover, Ohio, 80 tons, bids to be in Aug. 14.

Recent awards include:

Ashland, Ohio, 325 tons to United States Cast Iron Pipe & Foundry Co.

Sterling, Col., 800 tons to Colorado Fuel & Iron Co. and 200 tons to United States Cast Iron Pipe & Foundry Co.

Decatur, Ill., 125 tons to United States Cast Iron Pipe & Foundry Co.

Portsmouth, Ohio, 344 tons, to American Cast Iron Pipe Co.

Clarinda, Iowa, 212 tons, to United States Cast Iron Pipe & Foundry Co.

St. Cloud, Minn., 400 tons, to United States Cast Iron Pipe & Foundry Co.

We quote per net ton, f.o.b. Chicago, ex-war tax, as follows: Water pipe, 4-in., $58.80; 6-in. to 16-in., $55.80; class A and gas pipe, $1 extra.

Philadelphia

PHILADELPHIA, Aug. 12.

Activity is notable in some lines as previously reported; others show but little change, but what there is probably is for the better. Some of the plate mills, all of which working far below capacity, are not averse to taking business below 2.65c., Pittsburgh, as was evidenced by orders placed by the Pennsylvania Railroad for 8000 tons, the bulk of which was taken at 2.50c., Pittsburgh. Lighter gages, which were included, brought the full price. Some fair-sized orders for car repairs have been placed, and plates were placed with four mills in the East for 150 locomotives which the Baldwin Locomotive Works will build for shipment to Poland. Each will require about 40 tons, or about 6000 tons in the aggregate. The Government took bids a week ago on 9500 tons of fabricated shapes for a hangar at Lakehurst, N. J.

A maker of steel bars is so comfortably filled with orders that it has withdrawn from the market for the

time being, but it is not sold far ahead. The demand from the mines for light rails is better than it has been for some time. Pig iron is quiet, but stronger in view of the withdrawal of some of the recent low sellers. A Virginia furnace, which withdrew, has reentered the market, but quotes at a higher level. The old material market is easier, sales of heavy melting steel having been made at $19.50, and the dealers show less speculative tendency.

Pig Iron.—The variance in prices as quoted by different producers is narrower and the market presents a firmer aspect, with fewer transactions of importance in respect to size. In lots ranging from 200 to 1000 tons the market is fairly active, but the aggregate is not large. But one interest appears to be willing to sell into next year and this one is not inviting such sales, although a few orders have been taken. The general attitude with regard to next year is that uncertainties of labor, freight and fuel are too great to justify commitments to delivery in 1920. If a melter using several grades in his mixtures succeeds in buying one, he is likely to find he cannot buy the others. The local gray iron foundries are busy, almost without exception, and they are not only taking deliveries, but in some cases are anticipating them. In this direction a shortage of cars, already felt, is not helping out. A leading maker of charcoal iron has withdrawn from the market. Basic has been inactive, except for 1000 tons taken by a Delaware River plate maker. Two inquiries, one for 5000 and another for 1000 tons, emanate from New York exporters. Copper bearing low phosphorus is held at $35, furnace. Standard low phosphorus is quiet at $38, furnace, this being the new asking price, against recent sales at $35. In the case of a local inquiry for 500 to 1000 tons of foundry, wanted for first half delivery, $32.50 was quoted. No. 2 X is obtainable at $29.60, Philadelphia, from one or two makers, but most producers quote $30, or more, delivered Philadelphia. Some makers ask $30, furnace, for No. 2 X, $31 for No. 1, and $29.50 for No. 2 plain. A Virginia furnace which recently withdrew from the market later found it had some spot iron of which it could dispose, and it has made sales of No. 2 X at $29, furnace, making the delivered price, Philadelphia, $33.10. It quotes No. 2 plain at $32.10, Philadelphia. Other Virginia makers quote $28, furnace, for No. 2 X, but they are reported to have no standard analyses to offer, and those who buy their iron must pay extras for high silicon and manganese.

Eastern Penna. No. 2 X, 2.25 to 2.75 sil.	$29.60 to $31.10
Eastern Penna. No. 2 plain, 1.75 to 2.25 sil.	28.60 to 30.10
Virginia No. 2 X, 2.25 to 2.75 sil.	33.10
Virginia No. 2 plain, 1.75 to 2.25 sil.	32.10
Basic	26.60 to 27.10
Gray forge	26.60
Malleable	(nominal) 28.35
Standard low phosphorus (f.o.b. furnace)	35.00
Copper bearing low phosphorus (f.o.b. furnace)	35.00

Ferroalloys.—The market is quiet, with little or no change in price. English ferromanganese is held at $105, seaboard, and domestic at $110 to $115, delivered. Spiegeleisen is quoted at $33 to $35, for 18 to 20 per cent. Standard 50 per cent ferrosilicon is stronger at $85 to $90, delivered, in carload lots. In the week ended Aug. 9, 1300 tons of manganese ore from Russia in Asia arrived at this port.

Semi-finished Steel.—A slight improvement is noted, but it is not general. We quote open-hearth rerolling billets at $42.50; forging billets at $55, and slabs at $45, all delivered Philadelphia.

Plates.—While eastern Pennsylvania plate mills are holding firmly to the Pittsburgh base of 2.65c., or 2.895c., Philadelphia, there is still selling on the basis of 2.50c., Pittsburgh. This is much deplored by some in the trade, and is attributed to the fact that the mills are hungry for orders to roll. The lower price was paid for the bulk of 8000 tons by the Pennsylvania Railroad, although for light gages the full price was paid. The plate requirements of the 150 locomotives, which the Baldwin Locomotive Works will build for delivery to Poland, representing about 6000 tons of plates, will be supplied by four mills in the East. Some fair-sized orders have been placed for car repair work, purchases have been made by oil-tank makers, and there is a good influx of orders from miscellaneous directions, but the aggregate falls short of filling the mills to anywhere near capacity. In fact, about 50 per cent is about the rate of operation. Some sellers are urging consumers to contract to the end of the year, but others are not anxious to sell that far ahead and do so only in self-protection.

Structural Material.—The only large proposition before the trade that shows life is one advanced by the Government calling for 9500 tons of fabricated shapes for a hangar at Lakehurst, N. J., on which bids were taken Aug. 6. The general demand is a trifle better, partly because of large orders for stock replenishment. We quote plain material at 2.695c., Philadelphia.

Bars.—A large producer is so comfortably filled with orders for steel bars that it has withdrawn from the market. Strike trouble continues to make inactive two producers of bar iron at Lebanon, consequently offerings from them are with reluctance, even at the recently advanced price. We quote soft steel bars at 2.595c., Philadelphia, and bar iron at 2.745c., Philadelphia. Double refined bar iron is 1c. per lb. higher.

Sheets.—A local mill is well booked, to some extent for the fourth quarter. We quote Philadelphia delivered prices as follows: No. 10 blue annealed, 3.795c.; No. 28 black, 4.595c., and No. 28 galvanized, 5.945c.

Light Rails.—The demand from the mines for light rails is better than it has been for several weeks. It is augmented by the demand from industrial companies. We quote 2.695c., Philadelphia.

Old Material.—There is less demand from the Pittsburgh district for scrap, and inasmuch as dealers are unwilling to pay prices which recently have ruled for melting steel, the market may be considered easier, or, as some put it, it has lost its edge. While buyers are unwilling to pay $20 for melting steel, $19.50 has been paid, and that is nearer the market. Two or three mills will take material. On the other hand, there are some who see no weakening in the situation. Rolling mill scrap is dull, because two large users in Lebanon have failed to come to a settlement with striking employees. A satisfactory agreement was reached with regard to puddlers' wages, but now the question at issue is recognition of the union which the mills will not concede. We quote for delivery at consumers' works, eastern Pennsylvania, as follows:

No. 1 heavy melting steel	$19.50 to $20.50
Steel rails, rerolling	25.00 to 26.00
No. 1 low phosphorus, heavy, 0.04 and under	24.50 to 26.00
Carwheels	24.50 to 26.00
No. 1 railroad wrought	26.50 to 27.50
No. 1 yard wrought	23.00 to 24.00
No. 1 forge fire	15.00 to 16.00
Bundled skeleton	15.00 to 16.00
No. 1 busheling	16.00 to 17.00
No. 2 busheling	13.00 to 14.00
Turnings (short shoveling grade for blast furnace use)	14.50 to 15.50
Mixed borings and turnings (for blast furnace use)	13.00 to 14.00
Machine-shop turnings (for rolling mill and steel works use)	15.00 to 15.50
Heavy axle turnings (or equivalent)	16.50 to 17.00
Cast borings (clean)	14.50 to 15.00
No. 1 cast	25.00 to 26.00
Grate bars	20.00 to 21.00
Stove plate	20.00 to 21.00
Railroad malleable	20.00 to 21.00
Wrought iron and soft steel pipes and tubes (new specifications)	19.00 to 20.00
Ungraded pipe	15.00 to 16.00

Birmingham

BIRMINGHAM, Aug. 11.

Pig Iron.—The market has been advanced to a minimum of $27.50, while at least two operators are charging $27.75. The interest charging $27.50 is shading the higher silicon differential, while the interests charging $27.75 deny that they do that. One interest on the $27.75 basis, which it entered around Aug. 1, claims to have sold approximately 5000 tons at that figure, delivery during the next three months. Half the tonnage went to the Middle West and half was booked for the

South. This maker is asking $28.75 for strictly fourth quarter delivery, but does not report bookings at that figure. There is considerable irregularities in the differentials, one producer, who, however, is not now in the market, having disposed of something approaching its last half capacity on a fracture basis. None others sold on that basis. A large interest did considerable booking in Indiana and the Chicago territory in the week and sold 2000 tons for Michigan delivery. The export demand is strong, one maker receiving a half dozen inquiries in one mail from San Francisco, New York, Chicago and New Orleans. No special effort is made at this time to land this business on account of the optimistic domestic outlook. One export offer was for a firm's capacity for a period on basic at $27.50 per ton. The order was not accepted. The Thomas Iron Co., after months of repair work at Jenifer furnace, has finally blown in. The Central Iron Co. has shut down at Holt. The Woodward Co. is blowing out one stack for relining, but will blow in another. Active stacks in Alabama now are: Tennessee Coal, Iron & Railroad, 7 on basic, 1 on foundry and 1 on ferro-manganese; Sloss-Sheffield, 3, another to blow in soon; Woodward, 4; Republic, 2; Alabama company, 2; Gulf States Steel, 1 on basic; Jenifer, 1 on foundry; a total of 22 compared with an average of 16 during the stagnant period. Production will be further increased this month. Stocks went down in July and the outgo would have been greater but for car shortage. Foundry stocks are around 70,000 tons, the remainder being metal for company consumption. Up to Aug. 9 the carmen's strike had not caused any stacks to shut down. We quote per gross ton, f.o.b., Birmingham district furnaces, as follows:

Foundry, silicon 1.75 to 2.25	$27.50
Basic	26.50

Cast-Iron Pipe.—Water pipe concerns have marked up prices another $2, the leading interest now asking $49. In competition this price has been shaded. Williston, S. C., and La Grange, Ga., booked orders during the week. The influx of small orders has been large in the aggregate. Sanitary shops have all they can well care for and are shipping into almost every state of the union.

Coal and Coke.—Steam coal still lags owing to competition of fuel oil at New Orleans, competition with Kentucky and Tennessee coal and the lapping over of stocks. The general assembly is still debating a tonnage tax on coal and ore production with stout resistance. Spot foundry coke has advanced to $9.50.

Old Material.—There has been no change in the scrap market. Dealers report movements as confined to cast scrap with no break in the deadlock in heavy melting steel. We quote per gross ton f.o.b. dealers yards, prices to consumers as follows:

Steel rails	$14.50 to $15.00
No. 1 heavy steel	14.00 to 14.50
Cast iron borings	9.00 to 10.00
Machine-shop turnings	9.00 to 10.00
Stove plate	17.00 to 18.00
No. 1 cast	22.00 to 22.50
Car wheels	22.00 to 22.50
Tramcar wheels	21.50 to 22.00
Steel axles	22.00 to 23.00
No. 1 wrought	14.00 to 15.00

Boston

BOSTON, Aug. 12.

Pig Iron.—Recent events in transportation are inclining consumers to buy for prompt delivery so that the winter months, the more alarming labor situation, and the demands will not cause a dearth of iron at the time needed. These same factors are continually making manufacturers less willing to sell for 1920 delivery, not knowing what their costs will then be. All agents seem agreed that prices will go higher, as they already have gone during the past week. A sale was made recently by an eastern Pennsylvania furnace of 800 tons of iron, silicon 2.25 to 2.75 per cent, at $28 furnace, and the same tonnage of 2.75 silicon and upward for $29, furnace, which is now below the general market price. The General Fire Extinguisher Co., Auburn, R. I., has been inquiring for 2000 tons of both grades. An increasing number of furnaces are out of the market either because of filled order books or of strikes of furnace men. Several furnaces have advanced prices by $1 within the past 10 days. We quote, delivered to New England points: Eastern Pa., No. 2 X (silicon 2.25 to 2.75) $31.90; Eastern Pa., No. 2 plain (silicon 1.75 to 2.25) $30.90; Buffalo, No. 2 X (silicon 2.25 to 2.75) $32.90; Buffalo, No. 2 plain (silicon 1.75 to 2.25) $31.90; Virginia No. 2 X (silicon 2.25 to 2.75) $34.70; Virginia No. 2 plain $33.70; Southern No. 2 foundry (silicon 2.25 to 2.75) $36.60.

Old Material.—The active demand from the Pittsburgh district for scrap for steel plants was suddenly quenched with the starting of the railroad shopmen's strike last week which seriously interfered with shipments. There seems to be no demand from eastern Pennsylvania consumers. The chief movements in scrap have been those involving borings and turnings for blast furnace use and for machine shop turnings for rolling mills, the demand for which has forced the market up about $1. A few "specialties" for use in local foundries have been fairly active. One prominent dealer explains the heavy call for borings and turnings as the result of the intention of steel plants to use pig iron in place of heavy melting steel and thus boycott the scrap men when heavy melting steel is comparatively high. Again, borings and turnings have been proportionately low in price, compared with ore and coke. It is a rare occasion when scrap in New England sells on a future delivery basis, but that is what recently occurred with 300 tons of No. 1 machinery cast, which sold for $28, delivered, the freight rate being $1.50. Government sale of hot-rolled strip steel was made at $38.50 per net ton. Dealers' buying prices, Boston, follow:

No. 1 heavy melting steel	$14.50 to $15.00
No. 1 railroad wrought	19.00 to 19.50
No. 1 yard wrought	17.00 to 17.50
Wrought pipe (1 in. in diam., over 2 ft. long)	15.00 to 15.50
Machine shop turnings	11.00 to 11.50
Cast iron borings	10.00 to 10.50
Heavy axle turnings	10.00 to 10.50
Blast furnace borings and turnings	10.00 to 10.50
Forge scrap	10.50 to 11.00
Bundled skeleton	10.50 to 11.00
Steel car axles	21.00 to 21.50
Carwheels	24.50 to 25.00
Machinery cast	23.50 to 24.00
No. 2 cast	20.00 to 21.00
Stove plate	18.50 to 19.00
Railroad malleable	17.50 to 18.00

Buffalo

BUFFALO, Aug. 11.

Pig Iron.—Notwithstanding the general tendency on the part of producers to advance prices has been more marked this week than a week ago, it does not seem to stem the tide of buying. Apparently consumers have reached the point of view that the present status of the market does not warrant further waiting and that they should cover their needs as far as furnaces will permit. The market is not excited, but buyers exhibit a close interest. Inquiry and orders are coming in at fully as fast a rate as producers can handle them—if not faster; and buying for the week probably totals between 45,000 and 50,000 tons of various grades. This has been principally for last half delivery, a few small tonnages for the fore part of 1920 having been accepted by one or two interests. The producer feels that there is so much uncertainty ahead as regards labor, railroad embargoes, etc., emphasized by the ore handlers' strike at the upper Lake docks, that he hesitates to sell much tonnage for very advanced shipment, and is inclined to be cautious in committing himself for the future. Basic is nominally $26.75, or with 1 to 1½ per cent manganese $27.25, and 1½ to 2½ per cent manganese $27.75. We now quote as follows, f.o.b. furnace, Buffalo:

No. 1 foundry, 2.75 to 3.25 silicon	$29.75 to $30.00
No. 2 X, 2.25 to 2.75 silicon	28.00 to 29.00
No. 2 plain foundry, 1.75 to 2.25 silicon	26.75 to 28.00
Gray forge	26.25 to 27.50
Malleable, silicon not over 2.25	27.25 to 29.00
Basic	26.75
Basic, 1 to 1½ per cent manganese	27.25
Basic, 1½ to 2½ per cent manganese	27.75
Bessemer	27.95
Lake Superior charcoal, regular grades, f.o.b. Buffalo	32.35

Finished Iron and Steel.—Bars, structural material and sheets show improvement for the week, but mills are averse to selling far ahead on account of the uncertainty of market conditions, due to the labor situation, the possibility of changes in railroad rates, etc. Tin plate continues to show activity and business in wrought pipe is exceptionally good, especially for the larger sizes. A revival in bolts and nuts is also noted and some makers have advanced prices on bolts, amounting to approximately 10 per cent. The larger makers are convinced that there is sufficient buying in sight to call for an advance, taking costs into consideration and their sold up condition, some having large back-log orders; and it seems probable the new discounts will hold. The Kellogg Structural Steel Co., Buffalo, has taken 300 tons for a public school at Hazelton, Pa. The C. F. Ernst & Sons Iron Works, Buffalo, are low bidders for 150 tons for barn and garage for the Buffalo Street Department.

Prices f.o.b. Buffalo are as follows: Steel bars, 3.40½c.; iron bars, 4.10½c.; shapes, 3.50½c.; plates, 3.70½c.; No. 10 blue annealed sheets, 4.60½c.; No. 28 black, 5.65½c.; No. 28 galvanized sheets, 7.00½c. For "store door delivery" add 0.04½c. to each commodity.

Old Material.—Less active conditions are noted than prevailed a week ago. The market is somewhat unsettled owing to the checking of buying on the part of dealers, who are somewhat apprehensive as regards the effects of railroad strikes. Consumers are also more apathetic. Shipments are going forward in good tonnage on existing contracts and it is believed that the demand for most commodities and particularly for heavy melting steel will soon be renewed at a normal rate. We quote dealers asking prices as follows per gross ton, f.o.b Buffalo:

Heavy melting steel, regular grades	$18.00 to $18.50
Low phosphorus, 0.04 and under	22.00 to 23.00
No. 1 railroad wrought	23.00 to 23.50
No. 1 machinery cast	24.50 to 25.50
Iron axles	26.00 to 27.00
Steel axles	26.00 to 27.00
Carwheels	22.50 to 23.50
Railroad malleable	19.00 to 20.00
Machine-shop turnings	10.00 to 12.00
Heavy axle turnings	15.00 to 16.00
Clean cast borings	13.00 to 14.00
Iron rails	23.00 to 24.00
Locomotive grate bars	19.00 to 20.00
Stove plate	21.00 to 22.00
Wrought pipe	16.00 to 17.00
No. 1 busheling	15.00 to 16.00
Bundled sheet stamping	13.00 to 14.00

St. Louis

ST. LOUIS, Aug. 11.

Pig Iron.—The disposition of furnaces to lift prices has seemed to have some tendency to set the foundries in a state of mind to buy still further quantities, but the refusal to make commitments beyond Jan. 1 on the part of the furnaces is a handicap which cannot be overcome and in consequence the transactions, which continue in fairly good volume, are not up to what would be the case were the delivery date situation more flexible. At the same time the foundries have not reached a point where they are willing to lay pig iron down in their yards and carry it for the future period because of the uncertainties which have developed in the labor situation and which it is thought might possibly make business too much of a problem to justify carrying charges of such a character. The buying continues in lots up to 500 tons for the most part, with gray iron and malleable concerns the heaviest purchasers.

Finished Iron and Steel.—Although the railroad labor situation has had a disturbing effect on business, the aggregate buying of finished products continues to increase and the early release of a number of big contracts in the structural field is now being awaited as a result of amendments to the local building laws. For stock out of warehouse we quote as follows:

The following are present local jobbers' prices: Steel and iron bars, 3.33c. base; bands, 4.03c. base; structural shapes, 3.43c. base; plates, ¼-in. and heavier, 3.63c. base; No. 10 blue annealed sheets, 4.53c.; wire nails, $3.75 per keg base; machine bolts, smaller sizes, 50 and 5 per cent off list; larger sizes, 40 and 5 per cent. Semi-finished nuts, 9/16-in. and smaller, 75 and 10 per cent off list; soft steel rivets, 60 per cent off; wood screws, 80 and 10 per cent off, and coach screws, 50 and 10 per cent off list.

Old Material.—The pessimism developed as a result of the railroad situation has not yet been relieved. Some dealers are taking advantage of the drop in prices to lay material in the yards. Prices generally through the week were lower and evidenced a disposition to sag.

Per Gross Ton

Old iron rails	$20.50 to $21.00
Old steel rails, rerolling	26.00 to 26.50
Old steel rails, less than 3 ft	21.00 to 21.50
Relaying rails, standard sections, subject to inspection	38.00 to 40.00
Old carwheels	22.00 to 22.50
No. 1 railroad heavy melting steel	18.00 to 18.50
Heavy shoveling steel	16.00 to 16.50
Ordinary shoveling steel	15.00 to 15.50
Frogs, switches and guards, cut apart	18.00 to 18.50
Ordinary bundled sheets	9.00 to 9.50
Heavy axle and tire turnings	11.50 to 12.00

Per Net Ton

Iron axle bars	$18.50 to $19.00
Steel angle bars	16.00 to 16.50
Iron car axles	30.50 to 31.00
Steel car axles	26.50 to 27.00
Wrought arch bars and transoms	21.50 to 22.00
No. 1 railroad wrought	17.00 to 17.50
No. 2 railroad wrought	16.00 to 16.50
Railroad springs	16.50 to 17.00
Steel couplers and knuckles	15.50 to 16.00
Locomotive tires, 42 in. and over, smooth inside	18.50 to 19.00
No. 1 dealers' forge	15.00 to 15.50
Cast iron borings	8.50 to 9.00
No. 1 busheling	14.50 to 15.00
No. 1 boiler, cut to sheets and rings	13.50 to 14.00
No. 1 railroad cast	22.00 to 22.50
Stove plate and light cast	18.00 to 18.50
Railroad malleable	14.50 to 15.00
Agricultural malleable	14.50 to 15.00
Pipes and flues	14.50 to 15.00
Heavy railroad sheet and tank	13.50 to 14.00
Railroad grate bars	16.00 to 16.50
Machine shop turnings	9.00 to 9.50
Country mixed	12.00 to 12.50
Uncut railroad mixed	14.00 to 14.50
Horseshoes	18.50 to 19.00

New York

NEW YORK, Aug. 12.

Pig Iron.—Both domestic and export buying and new inquiry have been of good volume in the past week. Japan has bought 1000 tons or more foundry iron and is in the market for 5000 tons. Inquiries from Holland total 10,000 tons. Italy asks for 7000 to 10,000 tons, Scandinavia for 2000 tons, and inquiry for Belgium amounts to several thousand tons. Scattering lots of 100 to 200 tons are asked for also from South America, and 1000 tons is talked of for Australia, but it is not clear how tangible this latter is. For the United Kingdom 5000 tons of foundry iron has been bought in the past two weeks and there are still good sized inquiries from Scotland for basic, one being for 25,000 tons. The domestic buying of the week has included several lots ranging from 1000 to 3000 tons almost entirely for third and fourth quarters. Foundries whose orders were supposed to be sufficient to carry them through the year are buying here and there, and there are other indications that the stocks in foundry yards are not as large as was supposed. Scheduled shipments are being anticipated in some cases. Several transactions for 1920 delivery have been put through, but the average merchant furnace is not willing to do much for next year, in view of various uncertainties. Ocean freights are rather more favorable for export, some space from Gulf ports being available at $10 to the United Kingdom, while $12 is asked from Atlantic seaboard. Foundry pig iron to Japan would represent a cost of $49 to $50 c. i. f. Little business in Southern iron is possible in this market with an all-rail freight of $7.40 from Birmingham to Jersey City. A New Jersey by-product coke company has raised its quotation on foundry coke for this year's delivery by 50c. to $6, oven. The Worthington Pump & Machinery Corporation is reported to be still a buyer. We quote tidewater delivery as follows:

No. 1 foundry, silicon, 2.75 to 3.25	$30.80 to $32.80
No. 2 X, silicon, 2.25 to 2.75	30.30 to 31.80
No. 2 plain, silicon, 1.75 to 2.25	29.80 to 30.80
No. 2 X, Virginia, silicon, 2.25 to 2.75	32.40 to 35.40

Ferroalloys.—In the week 2000 to 3000 tons, and perhaps more, English and domestic ferromanganese, has been taken, the English makers accepting a price less than $105 seaboard which they have recently quoted. The actual figure is understood to have been $100 seaboard. Representatives of the English makers, while declining to confirm the prices stated that it was less than $105, seaboard, and that the transactions were the result of offers made by consumers and not from offers made by the makers. Delivery, it is indefinitely stated, is to be west of Harrisburg. Fifty per cent ferrosilicon is strong at $85 to $90, delivered, its firmness being due in no small part to the continued strike in Jackson County, Ohio, which is interfering with the production of blast-furnace ferrosilicon, causing a greater production of low per cent ferrosilicon in the electric furnace, and in turn causing less 50 per cent material to be made. Spiegeleisen is strong at $35, furnace.

Finished Iron and Steel.—Export business has lent the chief color to the market in the past week. The first 10 days of August have shown a scale of buying commensurate with that of June and July, but an increased disposition of sellers to select the offerings, not merely because they are pretty well sold out in many lines in terms of present labor-curtailed productive capacity, but because of uncertainty of the future that even present rates can be continuously maintained. Wire nails are exceedingly difficult to get, though mills are probably not sold up for more than 60 to 90 days. The makers refuse to add to their commitments except under the exceptional pleas of old customers. A similar condition describes the steel bar market and an immediate increase in price would be expected under the law of relative supply and demand, but the general sentiment against price advances both in respect to the indirect effect on the cost of living and on the labor attitude is checking any impulse in the direction of advances. One mill which about two weeks ago put its price at 2.40c. has been getting 2.50c. on relatively small lots for fairly early shipment. Others still remain out of the market. Although 2.50c., Pittsburgh basis, has still been done on plates for export, no domestic sales at this price are noted, although one lot of about 180 tons of ⅛-in. plates which may have been for export was sold at a 2.55c., Pittsburgh, basis. And it should be said that one of the mills has decided to make no further sales at less than 2.65c. for export and has since refused definite offers of 2.50c. A number of fabricated steel projects are before the market, but the general investment demand has not yet materialized and movement in such heavy products as shapes and plates has not yet got under way and of course railroad buying has not been a factor. Little interest is taken in the inquiry of the Railroad Administration for 100,000 tons of rails and the bidder which on the last inquiry quoted $55 and $57 is not expected to name lower prices. Bolt and nut makers in the East have not all met the advance of 5 and 10 per cent of Aug. 4 and even in territory where these prices are supposed to have been established business is being taken on the basis of the discounts of July 21. We quote as follows for mill shipments: Bar iron, refined grade, 2.77c.; double refined bar iron, 3.77c.; soft steel bars, 2.62c.; shapes, 2.72c.; plates, 2.92c.; all New York.

Warehouse Business.—Quotations have not yet settled down to an even basis, two leading interests and several smaller ones still holding to the $15 warehouse spread. On the other hand the rest of the dealers are firm for the scale, announced last week, which gives a $20 margin for jobbing out of store. The failure to establish the higher price schedule throughout the market is attributed by some authorities to a hesitancy bred of the hue and cry against advancing costs of all kinds. The trade generally is quiet, partly seasonal and partly from business inertia. Sizable orders for sheets continue to bring forth price-cutting competition; but advancing mill schedules and the impending car shortage are expected to stiffen quotations. It is reported that mills are asking for authority to make shipment of sheets in whatever kind of cars are available at the plant, protecting the stock as best can be done, but forwarding it at the buyer's risk. We quote out-of-store prices as follows: No. 10 blue annealed sheets, 4.57c.; No. 28 box annealed black sheets, 5.50c.; No. 28 galvanized sheets, 6.75c. to 7.00c.; steel bars, 3.37c. to 3.62c.; structural shapes, 3.47c. to 3.72c.; plates, 3.67c. to 3.92c.; bands, 3/16-in. Nos. 10 and 12, 4.07c. to 4.57c.; shafting, net list.

Cast-Iron Pipe.—Low prices were named by several makers on the 800 to 900 tons of 6-in. and larger pipe for the Panama Canal. The American Cast Iron Pipe Co. was low bidder. With advancing pig iron costs another bidder, about 50c. per ton higher, claims he is glad he did not get the order. The volume of business lately has been unusually good and less irregularity is expected in prices, which will shortly be quotably higher, though for the present we repeat the price of last week, namely: 6-in. and heavier, $51 to $52.30; 4-in., $54 to $55.30; 3-in., $61 to $62.30 and $1 additional for Class A and gas pipe.

Old Material.—Large buying has come to a sudden stop with an accompanying depression in tone. This, however, has not yet forced prices lower, though it has put an end to the gradual rise of the last few weeks. Some emphasize that stagnation is the normal condition in August when plants do not run energetically. Others point to what the Government insists on getting for its scrap as an indication of generally expected higher prices. For instance, a prominent firm bid recently $20.30 a gross ton for 10,000 tons of shell steel forgings, classed as heavy melting steel, but the Government rejected the bid on the grounds that it was too low. Several cars of scrap have been rejected in the Pittsburgh district and would probably have been accepted under more booming times. Cast scrap to foundries is being sold in only small amounts and there is a scarcity of this article. The scarcity also applies to stove plate, only single cars being observed in the freight yards where formerly there would be large groups. Prices which dealers and brokers are paying, New York, follow:

Old steel rails (or equivalent)	$16.50 to $17.00
Heavy melting steel	15.50 to 16.00
Rerolling rails	21.00 to 22.00
Relaying rails, nominal	41.00 to 42.00
Steel car axles	26.00 to 27.00
Iron car axles	32.00 to 33.00
No. 1 railroad wrought	23.00 to 23.50
Wrought iron track	17.00 to 18.00
Forge fire	10.50 to 11.00
No. 1 yard wrought, long	18.50 to 19.00
Light iron	6.00 to 7.00
Cast borings (clean)	11.00 to 11.50
Machine shop turnings	10.50 to 11.00
Mixed borings and turnings	9.00 to 9.50
Iron and steel pipe (1 in. min. diam., not under 2 ft. long)	16.50 to 17.00
Stove plate	17.50 to 18.00
Locomotive grate bars	17.50 to 18.00
Malleable cast (railroad)	15.00 to 16.00
Old car wheels	21.50 to 22.00

Prices which dealers in New York and Brooklyn are quoting to local foundries, per gross ton:

No. 1 machinery casts	$24.00 to $24.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	23.00 to 23.50
No. 1 heavy cast, not cupola size	17.00 to 17.50
No. 2 cast (radiators, cast boilers, etc.)	17.50 to 18.00

Cincinnati

CINCINNATI, Aug. 12.

Pig Iron.—Southern iron for spot shipment has almost disappeared. Furnace stocks in the Birmingham district have recently been drawn on quite heavily, although most of the recent orders booked have been for small tonnages. Late orders have been taken at a minimum price of $27.50, Birmingham basis, for 1.75 to 2.25 per cent silicon. This same price is now extended through the last quarter, but no figure has been established for first quarter 1920 business. The majority of furnaces have established a differential of $1 between the base price and iron analyzing 2.25 to 2.75 silicon, but one interest is now observing the before the war differential of 50c. No change can be made in Northern quotations as no business has been transacted lately that is of sufficient volume on which

to base quotation. The scarcity of Northern foundry iron has enabled Southern producers to take on considerable last quarter business at points where freight rates are against them. In some cases where the delivered cost of the metal was somewhat widespread, the special analysis required was a deciding factor in placing orders with Southern furnaces. High silicon iron is almost impossible to obtain. Jackson County furnaces are still handicapped in shipping what iron they have on hand as they are unable to get labor for loading it on cars. A small lot of Ohio 8 per cent silvery iron changed hands last week at $42.25, furnace, or $2 above the schedule. Books have not been formally opened for next year's delivery, but some Northern foundry iron was sold last month for first quarter shipment at $26.75, furnace. This furnace has now been withdrawn.

Based on freight rates of $3.60 from Birmingham and $1.80 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, silicon, 1.75 to 2.25 (base price)	$31.10
Southern coke, silicon, 2.25 to 2.75 (No. 2 soft)	32.10
Ohio silvery, 8 per cent silicon	42.05
Southern Ohio coke, silicon, 1.75 to 2.25 (No. 2)	28.55
Basic Northern	27.55
Standard Southern carwheel	51.60
Malleable	29.05
Lake Superior charcoal	$32.35 to 33.35

Coke.—In spite of the fact that the market is rather sluggish prices are very firm and show signs of advancing. Some furnace coke, for prompt shipment, changed hands in the Wise County field recently at $6 per net ton at oven. Foundry coke in that district is still held at $7.50. Connellsville prices are also firming up and 48-hr. coke is now around $4.25 to $4.50, with 72-hr. coke quoted at $6 to $6.50. New River foundry is unchanged at $8, but little of this fuel can be had in that district. Practically all West Virginia ovens are closed down. The car shortage is growing more exasperating due principally to the railroad shopmen's strike. No shipments can be made over either the Louisville & Nashville or the Chesapeake & Ohio railroads.

Finished Material.—Local jobbers reports a steady improvement in business. Reinforcing concrete rods are in good demand and there are more small structural shapes moving now than at this time last month. This is brought about by an increase in building operations in this vicinity, and indications are now that this building movement will extend well into the winter season. No advances in wire nail prices have as yet been made, and the local jobbers are still selling at $3.75 per keg base. Both black and galvanized sheets are moving more freely. No. 28 sheets are firm and unchanged at 4.35c. Pittsburgh and No. 28 galvanized at 5.70c. with a freight rate of 23c. to Cincinnati. The recent advance on bolts, nuts, rivets, machine screws, etc., are being adhered to firmly.

The following are present local jobbers' prices: Steel and iron bars, 3.33c. base; bands, 4.03c. base; structural shapes, 3.43c. base; plates, ¼-in. and heavier, 3.63c. base; No. 10 blue annealed sheets 4.53c.; wire nails, $3.75 per keg base; machine bolts, smaller sizes, 50 and 5 per cent off list; larger sizes, 40 and 5 per cent. Semi-finished nuts 9/16-in. and smaller, 75 and 10 per cent off list; soft steel rivets, 60 per cent off; wood screws, 80 and 10 per cent off, and coach screws, 50 and 10 per cent off list.

High Speed Steel.—Business is slowing down some, and no revival is looked for until late in the fall. Most machine shops have enough high-speed steel on hand to carry them along for the next few weeks; however, automobile manufacturers are buying more liberally. Standard brands are unchanged at $1.50 per lb.

Fluorspar.—The market is steady at $25 per ton for washed gravel fluorspar at point of shipment. Business is very slow, but shipments on contracts are going forward steadily in spite of the car troubles.

Old Material.—The market has developed a little weakness, and most quotations are approximately 50c. off. The demand for scrap has been curtailed to some extent as one large nearby melter's plant is closed down on account of labor troubles. Shipments to Pittsburgh and Cleveland consumers are being held up on account of the inability of dealers to obtain cars in which to load the metal. Very little scrap is being drawn from the railroads. The following are dealers buying prices f.o.b. at yards, in carload lots, Southern Ohio and Cincinnati.

	Per Gross Ton	
Bundled sheet	$12.50 to	$13.00
Old iron rails	22.75 to	23.25
Relaying rails, 50 lb. and up	40.00 to	41.00
Rerolling steel rails	21.50 to	22.00
Heavy melting steel	17.50 to	18.00
Steel rails for melting	17.50 to	18.00
Old carwheels	18.50 to	19.00
No. 1 railroad wrought	18.50 to	19.00
	Per Net Ton	
Cast borings	$8.00 to	$8.50
Steel turnings	7.00 to	7.25
Railroad cast	20.50 to	21.00
No. 1 machinery	22.50 to	23.00
Burnt scrap	13.00 to	14.00
Iron axles	25.00 to	26.00
Locomotive tires (smooth inside)	18.00 to	18.50
Pipes and flues	13.50 to	14.00
Malleable cast	16.00 to	16.50
Railroad tank and sheet	12.50 to	13.00

Cleveland

CLEVELAND, Aug. 12.

The paralysis of the ore movement from upper Lake docks owing to the strike of dockworkers for an advance in wages of 30 per cent has its serious phases, but the ore producers are not alarmed as to their ability to ship about 50,000,000 tons of ore this season and they say there is no danger of a shortage. At the beginning of the season it was estimated that the decrease in shipments this year would be much greater than it has been to date.

The strike at the plants of the American Steel & Wire Co. is regarded as of more importance than that of the dock laborers. All of the blast furnace and steel making capacity of the company in Cleveland is idle and very little of the mill capacity is in operation. The strike started by blast furnace workers was followed by a strike of the employees of the Newburgh & South Shore Railroad, which takes the hot metal from the blast furnaces to the steel plants. Demands for recognition of a local union and higher wages were made by the railroad employees combined with a demand for reemployment of a discharged switchman. The comany is maintaining a firm attitude but is making no attempt to install strikebreakers. The duration of the strike is a matter of great uncertainty.

Iron Ore.—Owing to a strike of dock workers at upper Lake ports, the shipments of ore were suspended the latter part of last week and all of the docks at those ports are now idle. More than half of the bulk freight fleet are now idle, as large numbers of the vessels have delivered their cargoes of ore and there is no immediate prospect of their being able to obtain more ore; hence they will be compelled to go to the docks and await developments as to the strike. The estimate made last week of ore shipments for July was very nearly correct, the exact figures being 9,173,429 tons, a decrease of 1,485,774 tons compared with July, 1918. Shipments up to Aug. 1 were 4,427,085 tons behind the record for the same period last year. The movement up to the first of this month was 25,185,848 tons. The first of the month, the lower Lake docks were holding 7,069,893 tons compared with 7,228,721 tons held on Aug. 1, 1918. The Lake Erie docks up to Aug. 1 received 18,496,231 tons compared with 21,896,414 tons for the same period last year. The prices of ore delivered at Lake ports are as follows:

Old range Bessemer, $6.45; old range non-Bessemer, $5.70; Mesaba Bessemer, $6.20; Mesaba non-Bessemer, $5.55.

Pig Iron.—Following the activity of earlier weeks there has been very little buying during the past few days. Interest recently has centered in the basic market and buying of this grade by two consumers has amounted to about 50,000 tons. Some of this business was placed at a concession of $1 or more from the regular price, but it is understood that a deal for some finished steel was involved in the transaction. In other sales a concession of at least 50 cents per ton has been made, but it is also true that sales have been made at the regular price. Weakness in the basic

market is attributed to the fact that many consumers, especially those catering to the railroad trade, are operating at less than 30 per cent of capacity. The furnace of the Struthers Furnace Co., Struthers, Ohio, which has been making basic for 20 years, will go on foundry iron as soon as it blows in. The stack has been out for relining and will be ready for operation Aug. 15. It will not, however, be blown in immediately. The foundry iron market is strong, with leading producers well sold up for the remainder of this year and very conservative about selling for the first half of next year. There is some talk of advancing prices on foundry iron for first half of next year. A new schedule of prices for silvery iron has been announced by one producer, for fourth quarter of this year, the advance being $2 per ton on a basis of $44.65 for 8 per cent. There is a marked scarcity of silvery grades owing to the strike which still continues at the Jackson furnaces. The Milton furnace of the Milton Furnace Co., Wellston, Ohio, will blow out this week for relining. Some Southern sellers have advanced their price to $27.75, Birmingham, for 1.75 to 2.25 per cent silicon, but no sales are reported on this basis. We quote delivered Cleveland as follows:

Bessemer	$29.35
Basic	26.15
Northern No. 2 foundry, silicon, 1.75 to 2.25	27.15
Southern foundry, silicon, 2.25 to 2.75	33.00
Gray forge	26.15
Ohio silvery, silicon, 8 per cent	44.65
Standard low phos., Valley furnace	$38.00 to 40.00

Finished Material.—Many orders are being received for wire products by the American Steel & Wire Co., which is not booking them on account of the strike at its plants. This condition intensifies the situation which has prevailed for some time in regard to wire products. The mills are falling behind in their deliveries and the independents as well as the Steel Corporation are taking orders in a very conservative way. New structural contracts include 849 tons for the new plant at Columbus of the Timken Roller Bearing Co. to the Canton Bridge Co., the Jones & Laughlin Steel Co. to furnish the steel; 1050 tons for new plant of the Adirondack Steel Foundry Co., Watervliet, N. Y., to the Ferguson Steel & Iron Co., Buffalo; 554 tons for the Paul Brothers Building, Cleveland, to King Bridge Co. It is expected that the contract for the plant of the Firestone Steel Products Co., Akron, Ohio, calling for 900 tons, will be awarded this week. Independent companies having new plate mills are credited with doing most of the cutting on prices of plates but concessions have been widespread. The market seems, however, to be firmer and we note one sale of 400 tons at the full price 2.65c. Pittsburgh. Several inquiries for 300 tons each of rails for industrial plants are pending. One agricultural implement company has applied for a contract for bars for a year beginning Jan. 1, but mills are not disposed to grant contracts for such a long period and will try to hold down to quarter year periods on these contracts. Warehouse prices are as follows:

Steel bars, 3.27c.; plates, 3.57c.; structural shapes, 3.37c.; bands and hoops, 3.97c.; No. 10 blue annealed sheets, 4.47c.; No. 28 black sheets, 5.27c.; No. 28 galvanized sheets, 6.62c.

Bolts, Nuts and Rivets.—The Cleveland manufacturers of bolts and semi-finished nuts are uniformly quoting the new prices announced last week, which were an advance of 10 per cent. The demand is active and considerable difficulty is being experienced in getting material. This is due in part to the strike which has tied up a considerable part of the Cleveland plant of the American Steel & Wire Co., necessitating the shipment of rods from Pittsburgh. Specifications against contracts are coming in freely. Many of the larger buyers of rivets were covered before the recent advance of $4 was announced. Manufacturers have all the orders they can handle and report business is very satisfactory.

Old Material.—The market is considerably weaker with very little demand to test prices, but quotations are almost without exception lower. Some dealers who have considerable stocks on hand are still trying to maintain the prices which prevailed last week, but the trend is downward in sympathy with similar conditions in the scrap market in other centers. We quote per gross ton, delivered consumer's yard in Cleveland and vicinity as follows:

Heavy melting steel	$21.25 to $21.75
Steel rails, under 3 ft.	23.00 to 23.50
Steel rails, rerolling	26.00 to 26.50
Iron rails	26.00 to 27.00
Iron car axles	35.00 to 36.00
Steel car axles	33.00 to 34.00
Low phosphorus melting scrap	22.50 to 23.00
Cast borings	15.25 to 15.50
Iron and steel turnings and drillings	12.00 to 12.50
Compressed steel	18.50 to 19.00
No. 1 railroad wrought	23.50 to 24.50
Cast iron carwheels	22.50 to 23.00
Agricultural malleable	1800 to 18.50
Railroad malleable	21.00 to 22.00
Steel axle turnings	17.50 to 18.00
Light bundled sheet scrap	16.00 to 16.25
No. 1 cast	23.00 to 24.00
No. 1 busheling	20.25 to 20.75
Drop forge flashings, 10 in. and under	18.50 to 19.00
Drop forge flashings, over 10 in.	16.00 to 16.25
Railroad grate bars	19.00 to 20.00
Stove plate	19.00 to 20.00

EXPORT TRADE

Concern Felt Over Growing Indifference of Producers, Owing to Domestic Demands—Volume Heavy and Broad

The volume of inquiry on export account is still exceptionally large and bookings are being made at a rate commensurable with those of June and July. Reassuring in the matter of business are a number of repeat orders indicating satisfaction in dealings with the United States, if not indefinitely, at least in comparison with the present uncertainty of business dealings with other export nations. The reduction in ocean freight rates to Europe and to South America has not been a factor, as it appears almost impossible to get space at these rates for a number of months, at least from the port of New York.

Considerable emphasis is being paid to an apparent growing indifference on the part of steel makers to export possibilities. Exporters are complaining of the shortsightedness being evidenced in a refusal to consider export inquiries and point out a tendency of the makers to return to the old-time tactics of exporting only when it is convenient to do so. They admit that an underlying reason at the moment is an increasing home demand in the face of uncertainties of maintaining, let alone increasing, production rates.

Export bookings to England are apparently still a very small matter. The bulk of the business is with Cuba and South America. Exporters do not view uniformly the feelers from the Orient, some regarding the business as more or less mythical, and likely to be of smaller volume than seems the case on the surface, even should requested concessions be met. Large structural projects are under active consideration for Australia and South Africa, these indicating the lack of dependence on England. This work is largely for factories and it is expected will include fabrication. Some hope is expressed that a way will be found to accept the bridge work for Rumania, a total, as already mentioned in these columns, of 25,000 tons.

A notably heavy amount of export trade is moving in bolts and nuts and there would be a swelling total in wire nails and wire products and in bars if buyers could close. On account of some 36 locomotives for the American Locomotive Co., plates have sold at 2.50c., Pittsburgh, but all the plates have not been placed, and one mill at least has refused to increase its orders for less than the general market price of 2.65c., Pittsburgh. A lot of 180 tons of ⅛-in. plates has been sold for 2.55c., Pittsburgh, and it is presumed for export. A lot of 55 tons for export went, however, at 2.65c., Pittsburgh.

Doubt is expressed that the reported lot of 10,000 tons of rails and upward for Denmark will be placed

in the United States. Among other larger inquiries are 100,000 boxes of tin plate for Japan, 700 tons of rails for Holland and 16,000 reels of barbed wire for South America, the last for September delivery.

British Iron and Steel Market

Advances in Steel of 5 to 20s. per Ton — Fuel Shortage Curtailing Output

(By Cable)

LONDON, ENGLAND, Aug. 11.

The coal output for the week ended July 26 was only 2,500,000 tons, a reduction of nearly 50 per cent from the average weekly output prior to July 16. The labor disputes in the coal regions are still unsettled. The Cyfarthfa works, Wales, have closed down and several furnaces in the Midlands are banked for lack of fuel. Some Staffordshire furnaces are also threatened with stoppage.

Markets remain quiet and the uncertainty checks forward buying. The economic and financial conditions are increasingly adverse. Foundry iron is very scarce and general production is increasingly inadequate. Hematite iron is in fair demand. Freights on ore are falling, the best Rubio being now 53s. 6d. ex-ship on the River Tees.

A number of steel price advances of 5 to 20s. per ton have been made, as noted in the table below, and others are expected owing to dearer crude steel and higher-priced labor.

Lorraine basic iron has sold for 165s. (about $35.60) delivered, Scotland.

German pig iron production in June amounted to 527,000 tons and ingots 644,000 tons against a production in May of 525,000 tons of pig iron and 598,000 tons of ingots. It is increasingly probable that German steel works will handle their own selling problems and fix their own prices.

American interests are reported negotiating for the purchase of the Skoda works in Bohemia.

We quote per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalents figured at 4.32 for £1, with the reservation that most makers have temporarily withdrawn prices:

Pig iron	£ s. d.	£ s. d.	
East coast hematite	10 5 0	.....	$44.28 .....
West coast hematite	10 5 0	.....	44.28 .....
Scottish foundry	10 10 0	.....	45.36 .....
Billets	15 0 0	.....	64.80 .....
Tin plate and sheet bars	14 0 0	.....	60.48 .....
Rails, 60 lb. and upward	16 10 0	.....	71.28 .....
			Cents per lb.
Steel bars	20 5 0	.....	3.90 .....
Large rounds, etc.	18 7 6	.....	3.54 .....
Beams	17 10 0	.....	3.37 .....
Plates	18 5 0	.....	3.52 .....
Plates, boiler	21 0 0 to 21 10 0	.....	4.05 to 4.14
Bar iron, stand. crown	22 0 0	.....	4.24 .....
Galvanized sheets	28 5 0	.....	5.44 .....
Tin plates, 14 x 20, coke, 112 sheets, 108 lb., f.o.b. Wales	1 15 3	.....	$7.61 .....

Higher Coal and Higher Iron Costs—Imports of American Steel Not Large

LONDON, ENGLAND, July 24.—The chief topic of conversation and interest in the markets at present is of course the rise of 6s. per ton in the price of coal. The announcement when first made came as somewhat of a bombshell, for although a rise generally has been anticipated no one expected it would amount to so much and the general result has been to cause little short of dismay. The increase in the price seems likely to bear harder upon the iron and steel industry than upon most others. Competition from your side is already a formidable factor, and the necessary rise in prices here will naturally make it more difficult than ever for British works to compete, while when the French iron works and particularly those of Alsace-Lorraine are able to share in the competition of Europe, England's position will go from bad to worse.

A large iron and steel company in the Manchester district which requires some 15,000 tons of coal and an equivalent amount of coke week by week calculates that its fuel bill will leap up by £234,000 per annum. A representative of this firm estimates that the adding of 6s. per ton to the price of coal will make steel £2 per ton dearer. In regard to pig iron it is estimated that the advance would amount to 20s. per ton if the additional cost of coal is to be taken into account. At the same time, it is pointed out that the price of pig iron has already advanced considerably for no other reason than that there was a good demand, and it is asserted that producers of pig iron can very well afford to pay the increase out of profits.

The whole position, however, in the meantime is in the melting pot, and no one at present knows how things are going to work out. The industrial situation is most unsatisfactory owing to the continued and insistent demands of labor. Strikes have been on within the last week or two at steel works on the Tees-side and in South Wales, while there has also been a strike of ironstone workers, as well as a railroad strike on the Northeast Coast.

To Check American Steel

In the meantime, rumors have been about that the British steel makers were considering a boycott warning to British buyers of American steel, to the effect that if they continue to buy steel abroad they need expect no more steel from British works, and it is thought that such a move would overshadow the comparative advantages of the slightly lower American prices. There seems to be a certain satisfaction drawn from the fact that although there are many large offers of American steel talked about, only small quantities have arrived. It is believed in addition, in some quarters, that the rapid recovery of the American steel trade in other markets will cut down the amount of steel likely to go to Great Britain although the competition in overseas markets is likely to be most severe.

Imports from France and Belgium

A fair business is reported to have been done in Lorraine iron and steel, including some sales of Thomas pig iron. Some of this business has been done with British consumers and the remainder with neutral countries. Some Belgian finished material is offering again, and the Providence works have informed customers that they hope to be in a position to do business in rounds, squares, flats, etc., by the middle of August.

It is stated officially here that the well-known firm of export engineers, John Birch & Co., Ltd., has completed its arrangements for a large increase of capital with a view to the extension of its business. The firm still remains a private company but its capital has been enlarged to £250,000 and it has become associated with the large armament and steel firm of William Beardmore & Co. of Glasgow, whose overseas selling agency has been put into its hands. In this way the marketing abroad of Beardmore steel and other products will be associated with a well equipped mercantile organization. There is no actual fusion or combine but a close combination of interests for the purpose of export business.

Restrictions on Imports

The trading community has been considerably perturbed by the continued restrictions on imports, and the merchants of the Manchester district recently called attention to the paralysis in their trade due to the impossibility of forecasting the trend of prices of raw and semi-manufactured iron and steel. The shortage of material caused lack of employement while the high prices of home manufactures due to the shortage, made it impossible to compete for foreign trade in fully manufactured iron and steel products. They therefore requested that the Board of Trade should withdraw all restrictions on the import of raw ferrous metal. They further requested that the Board of Trade should clear the air by stating definitely the fiscal policy of the Government in regard to importations from allies and neutrals.

Pittsburgh and Nearby Districts

"To build and operate a new steel plant at Ambridge," a new company has been formed by J. S. Hammond, Frank S. Schneider and E. A. Pitcairn, Pittsburgh. Property comprising about 40 acres of land, fronting on Buss Avenue at Ambridge, and adjoining the works of the Seamless Tube Co., has been acquired as a site.

The Carnegie Steel Co. is building new marine ways at Coal Valley. The Foundation Co., New York, has the contract for the work and it is planned to complete the structure early in the fall. The new ways are of steel construction and will be among the most modern on local rivers. The company is now rushing work on five new tow boats for river service.

The Standard Steel Car Co., Pittsburgh, has purchased about 84 acres of property in West Deer Township.

The Pittsburgh Rolls Corporation, Pittsburgh, has filed plans for the construction of additions at its furnace department, Forty-first Street and the Allegheny Valley Railroad, to cost about $26,000.

The Keighley Mfg. Co., formerly at Follansbee, W. Va., has purchased the former plant of the Adler Stove & Range Co., at Carnegie, Pa., and already is in possession of the property and will engage in stove manufacturing.

Planning extensive improvements to its properties, the Pittsburgh Malleable Iron Co., Pittsburgh, has filed notice with the Pennsylvania State Department of an increase in capital stock from $300,000 to $1,000,000. John B. Coates is secretary.

Youngstown and Vicinity

Restricted car supply is causing principal iron and steel companies concern and is retarding shipments to some extent. Taking the district as a whole there was an average 60 per cent supply of box and 90 per cent supply of open top cars in the past week. Railroads promise an improvement through release of rolling stock tied up at the seaboard.

Two hundred members of the clerical force and superintendents of the Carnegie Steel Co., Youngstown district, attended the second annual outing Aug. 9 at Lake Milton, Ohio.

Orders continue to pile up in the steel trade in the Mahoning Valley. Fabricators also report a greatly improved demand. The William B. Pollock Co. is filling substantial orders for cinder cars, ladle cars and other steel plant equipment. The Petroleum Iron Works Co. is rushed with orders for tanks from the oil country and for tank cars.

The Youngstown Sheet & Tube Co. announces that it has built, through its subsidiary, the Buckeye Land Co., 281 concrete houses in the village of East Youngstown, near its main works. These houses are for foreign-born employees. They rent for from $15 to $20 per month and are furnished with water without additional cost. All are wired for electric lights and have bath rooms and are connected with sewers. The land company has also arranged to take care of an important class of foreign-born people who are ready to purchase homes. To date, 50 such dwelling houses have been erected. Ten per cent of the cost of the property is required as first payment and monthly payments of 1 per cent thereafter. Interest in the balance is charged at the rate of 5 per cent. The company provides life insurance, giving to each purchaser a paid-up policy, so that in case he dies or is totally disabled, the property is deeded to his heirs free of further payments.

An exhibition of metal products will be a part of the St. Louis Exposition of Industrial Arts and Crafts, to be held for four weeks beginning Oct. 15. The purpose of the exposition is to show the relationships among industry, art and craftsmanship and designing and to emancipate American industry from European influence.

IRON AND INDUSTRIAL STOCKS

Market Suffers Further Decline with Partial Recovery—Trading More Quiet on Smaller Turnover

NEW YORK, Aug. 12.

Liquidation interrupted by Wednesday's partial recovery was resumed on Thursday, with the general average of industrial stocks closing with a loss of three to seven points on a turnover of close to one and three-quarter million shares. A partial recovery on Friday was succeeded by irregularity with a firm undertone developing Tuesday on a lessening volume of sales. The range of prices on active iron and industrial stocks, from Tuesday of last week to Wednesday of this week was as follows:

Allis-Chalm. com.	39¼ - 42	Lackaw. Steel ..	77 - 81½
Allis-Chalm. pf..	91⅜ - 92½	Lake Sup. Corp..	21½ - 23½
Am. Can com...	48½ - 54	Midvale Steel ..	48⅛ - 53⅝
Am. Can. pf....103	-103½	Nat.-Acme	36 - 39
Am. C. & Fd. cm.112	-132	Nat. En. & St. cm.	72¼ - 77½
Am. C. & Fd. pf.115½	-116	N. Y. Air Brake.108	-114½
Am. Loco. com..	80 - 90⅜	Nova Scotia Stl..	70 - 78½
Am. Ship com...	— -120	Pittsb. Steel pf..	— - 97
Am. Steel Fdries	36¼ - 42¾	Pressed Stl. com.	81¼ - 93
Bald. Loco. com.	99½ - 113⅜	Pressed Stl. pf..	— -102
Beth. Steel com..	82 - 85⅜	Ry. St. Spg. com.	85⅛ - 93¾
Beth. Steel Cl. B.	82¼ - 89⅝	Republic com...	83⅞ - 90¾
Case, J. I., pf...100⅜	-100½	Republic pf. 105	-105¾
Cent. Fdry. com.	32⅛ - 36⅛	Sloss com.	60 - 64
Cent. Fdry. pf...	61 - 68	Superior Steel ..	40 - 44
Chic. Pneu. Tool	75 - 78	Transue-Williams	57¾ - 59
Colo. Fuel	42½ - 45¾	Un. Alloy Steel..	50 - 53½
Cru. Steel com..126½	-137¾	U. S. Pipe com..	32⅛ - 38⅝
Cru. Steel pf....101	-102	U. S. Pipe pf...	66½ - 71½
Gen. Electric....160	-163	U. S. Steel com.100½	-107¼
Gt. No. Ore. Cert.	40½ - 45¼	U. S. Steel pf...114½	-116
Gulf States Steel	58 - 62	Va. I. C. & Coke.	60 - 61
Int. Har. com...130	-133½	Westingh. Elec...	50½ - 54½

Dividends

The Harbison-Walker Refractories Co., quarterly, 1½ per cent on the preferred, payable Oct. 20.

The Moline Plow Co., quarterly, 1¾ per cent on the first preferred and 1½ per cent on the second preferred, payable Sept. 1.

The Niles-Bement-Pond Co., quarterly, 2 per cent on the common, payable Sept. 20, and 1½ per cent on the preferred, payable Aug. 20.

The Pratt & Whitney Co., quarterly, 1½ per cent on the preferred, payable Aug. 20.

The T. H. Symington Co., quarterly, 2 per cent on the preferred and extra 28 per cent on account of accumulated dividends, being in full of all accumulations, payable Aug. 15.

Bituminous Coal Production Prospects

The production of bituminous coal for the week ended Aug. 2 is estimated at 9,946,000 net tons, a slight decrease below the three preceding weeks. "This rate of production, approximating 10,000,000 tons a week, is somewhat above the current consumption as railroads and industrials have begun to stock coal," says a report from the U. S. Geological Survey. "If production is continued for the remaining 22 weeks of the year at an average of 10,000,000 tons a week, production for the year will be about 480,000,000 tons, equal to the output in 1913 and a decrease of 18 per cent compared with 1918 but below that in 1916 and 1917. As indicating in part the reason for the lack of market for bituminous coal the first part of this year, it is noted that the railroads, with a consumption of 154,000,000 tons of bituminous coal in 1918, consumed 17 per cent less coal the first half of 1919 than in the corresponding period of 1918 and the production of pig iron declined 10 per cent in the same corresponding period."

The production of beehive coke increased from 371,000 net tons in the week of July 26 to more than 377,000 tons in the week of August 2. The increase was in Pennsylvania, and in Washington and Utah, all other districts both west and south recording considerable decreases.

The Midvale-Cambria Co. has opened a new warehouse yard at 240 Albany Street, Cambridge, Mass., for the storage and sale of Slick and other reinforcing bars.

Non-Ferrous Metals

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Tin, New	Lead		Spelter	
Aug.	Lake	Electrolytic	York	New York	St. Louis	New York	St. Louis
6.....	22.75	22.50	70.00	5.70	5.50	7.72½	7.37½
7.....	22.62½	22.25	70.00	5.65	5.50	7.60	7.25
8.....	22.62½	22.25	70.00	5.60	5.50	7.60	7.25
9.....	22.50	22.00	70.00	5.60	5.50	7.60	7.25
11.....	22.00	21.50	70.00	5.60	5.50	7.60	7.25
12.....	22.00	21.50	70.00	5.60	5.50	7.60	7.25

NEW YORK, Aug. 12.

In the week all the metals have shown a declining tendency, but it is believed the trend in this direction has about halted. Copper is strengthened by stronger cables from London, while the stock market is not exerting so adverse an effect. Spot tin is unchanged, but arrivals indicate an easier market. Lead is quiet, with second-hands alone trying to sell. Spelter is quiet.

New York

Copper.—The producers continue to adhere to their quotations of 23.50c. to 24c. for September and October, and are selling but little, the larger consumers being satisfied for the present. What business is moving is in second-hands who quote nearby metal at 21.50c. to 22c. for electrolytic, and at these levels the market is a trifle firmer on the basis of stronger cables from London. In the British capital the market has been soft, having declined several pounds, and this had had at least a sentimental effect on this market. Lake has not declined proportional to electrolytic, for which its scarcity accounts. The settlement of strike troubles at Rome, N. Y., is a favorable factor.

Tin.—The nominal quotation for spot Straits tin is unchanged at 70c., but arrivals forecast a shrinkage in the near future. On Aug. 1, the Port Bowen arrived from Liverpool with 175 tons; Aug. 4, the Port Alma, from London, with 25 tons; Aug. 8, the Adriatic, from Liverpool, with 50 tons, and on Aug. 11, the Orduna, from Liverpool, with 100 tons; a total of 350 tons. Now due are the Tropic, the Bardic and the Baltic, all of which have tin aboard, just how much not being reported. As the availability of spot tin becomes nearer it is regarded as probable that the spot price will come down, while that afloat will advance until the two meet. The week was quiet until yesterday, when 400 to 500 tons changed hands at the following prices: October delivery from the East, 52.25c.; November from the East, 52c.; October from the East (later), 52c.; September from the East, 52.25c.; afloat from England, 54.40c. Sellers offered September to December from the East at 51.75c.; Lamb & Flagg for prompt shipment at 51.50c., and Straits, September shipment from England, at 53c.

Lead.—While the lead interest has adhered to 6c., New York, the price of outsiders has dropped to 5.60c. The weakness has not been so pronounced at St. Louis, the quotation there being around 5.50c., throughout the week. Not much interest has been shown, and the market is in the hands of outside sellers. It is the belief of the trade that it will be left in their hands, and that the leading producer will not reduce its quotations, for, if it does, the smaller competitors will simply cut further. Consumers being well supplied, a waiting policy can be followed.

Antimony.—In a quiet market, spot antimony is easier at 9c., New York, duty paid.

Zinc (Spelter).—After a week of quiet, with prices tending toward decline, there came some fairly active buying with a firmer tendency in prices. Altogether there is not much doing, some producers not attempting at all to take business. Prompt zinc is quoted at 7.60c., New York, and 7.25c., St. Louis. The producers are well sold up, which accounts for their not being solicitous about selling at present prices.

Aluminum.—The range in prices of aluminum is somewhat greater, the leading interest quoting virgin metal at 33c., while 31c. is bid. In the main, the spot price can be called 32c. French aluminum for August and September delivery, which was offered at less than 31c., has been absorbed, and for future shipments from the same source higher prices are asked. We quote virgin metal, 98 to 99 per cent pure, at 31c. to 33c.

Old Metals.—The market is dull. Dealers' selling prices are nominally as follows:

	Cents per lb.
Copper, heavy and crucible	22.00
Copper, heavy and wire	20.50
Copper, light and bottoms	18.00
Brass, heavy	15.00
Brass, light	11.00
Heavy machine composition	20.00
No. 1 yellow rod brass turnings	12.75
No. 1 red brass or composition turnings	16.00
Lead, heavy	5.50
Lead, tea	4.25
Zinc	6.00

Chicago

AUG. 11—Copper is more active than a week ago, the revival in interest being attributable to price cutting by independent interests. Spot tin is scarce and the price is uncertain. Lead is dull, despite the fact that a decline has been forced by independent sellers. Spelter has also declined, but is more active than last week. Antimony continues dormant. Old copper, brass, pewter and tin have slumped. We quote copper at 23c. to 23.50c. for carloads; tin, 70c. to 72.50c.; lead, 5.65c. to 5.70c.; spelter, 7.37½c.; antimony, 10c. to 11c. On old metals we quote copper wire, crucible shapes, 16.50c.; copper clips, 14.50c.; copper bottoms, 14c.; red brass, 16.50c.; yellow brass, 10c.; lead pipe, 4.25c.; zinc, 5c.; pewter, No. 1, 30c.; tinfoil, 35c.; and block tin, 40c.; all these being buying prices for less than carload lots.

St. Louis

AUG. 11.—The market eased further the past week with lead closing at 5.60c. and spelter at 7.25c., carload lots. In less than carloads lead was 5.85c. and spelter 7.50c. to 7.75c. In the Joplin district ores were weaker and ranged lower, with sales reduced in quantity, partly caused by the railroad situation with its threatened embargoes. On miscellaneous scrap metals we quote dealers' buying prices as follows: Light brass, 7.50c.; heavy yellow brass, 10c.; heavy red brass and heavy copper, 15c.; light copper, 13c.; lead, 4c.; zinc, 4c.; tea lead, 3.50c.; pewter, 35c.; tinfoil, 43c.; aluminum, 18c.

Cincinnati

AUG. 11—The market is somewhat weaker. Heavy and crucible copper scrap is now around 17c. Copper wire is 17c. to 17.25c. Heavy red brass has also declined to 17c., while light brass is quoted around 8c. to 8.50c. No. 1 pewter is firmer and is now quoted at 36c. to 37c. Block tin pipe is weaker and is around 52c. to 53c. Lead is unchanged at 4.25c. A better demand for stereotype metal has developed and it is quoted to-day at 5c. to 5.50c. The railroad shopmen's strike has had an adverse effect on the market.

Industrial motion pictures are now being made by 21 manufacturers of machinery, members of the Material Handling Machinery Manufacturers Association and an industrial film of the United States Army Supply Base, Brooklyn, N. Y., has been made for the Otis Elevator Co., New York, showing cranes, locomotive cranes, gravity and power conveyors, hoists and the new micro-drive elevator system. Director Francis Holley, of the Bureau of Commercial Economics, Washington, D. C., announces that the Government is showing industrial pictures free of charge throughout the United States in Chambers of Commerce, technical societies, before legislative bodies and from specially built trucks in public squares and other gathering places.

Prices Finished Iron and Steel, f.o.b. Pittsburgh

The prices below, except on nuts, bolts and rivets, are based on those announced at Washington by the Industrial Board on March 20, 1919, effective the following day, which since that date have largely governed market transactions, though there have been variations, as indicated in market reports on other pages.

Freight rates from Pittsburgh on finished iron and steel products, including wrought iron and steel pipe, with revisions effective Nov. 1, 1918, in carloads, to points named, per 100 lb., are as follows: New York, 27c.; Philadelphia, 24.5c.; Boston, 30c.; Buffalo, 17c.; Cleveland, 17c.; Cincinnati, 23c.; Indianapolis, 25c.; Chicago, 27c.; St. Louis, 34c.; Kansas City, 59c.; St. Paul, 49½c.; Denver, 99c.; Omaha, 59c.; minimum carload, 36,000 lb. to four last named points; New Orleans, 38.5c.; Birmingham, 57.5c.; Pacific Coast, $1.25; minimum carload, 80,000 lb. To the Pacific Coast the rate on steel bars and structural steel is $1.315, minimum carload 40,000 lb.; and $1.25, minimum carload 50,000 lb. On wrought iron and steel pipe the rate from Pittsburgh to Kansas City is 50c. per 100 lb., minimum carload 46,000 lb.; to Omaha, 50c., minimum carload 46,000 lb.; to St. Paul and Minneapolis, 49.5c.; minimum carload 46,000 lb.; Denver, 99c.; minimum carload 46,000 lb. A 3 per cent transportation tax applies. On iron and steel items not noted above, rates vary somewhat and are given in detail in the regular railroad tariffs:

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in.; angles, 3 to 6 in. on one or both legs, ¼ in. thick and over, and Zees, structural sizes, 2.45c.

Wire Products

Wire nails, $3.25 base per keg; galvanized, 1 in. and longer, including large-head barbed roofing nails, taking an advance over this price of $1.50, and shorter than 1 in., $2.00. Bright basic wire, $3.15 per 100 lb.; annealed fence wire, Nos. 6 to 9, $3.00; galvanized wire, $3.70; galvanized barbed wire and fence staples, $4.10; painted barbed wire, $3.40; polished fence staples, $3.40; cement-coated nails, $2.85 base; these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 60½ per cent off list for carload lots, 59½ per cent for 1000-rod lots, and 58½ per cent off for small lots, f.o.b. Pittsburgh.

Bolts, Nuts and Rivets

Large structural and ship rivets.....$3.90 base
Large boiler rivets.....$4.00
¼ in., 5/16 in. and 7/16 in. diameter.....60-5 per cent off list
Machine bolts, hp. nuts, ⅜ in. x 4 in.:
Smaller and shorter, rolled threads.....60 per cent off list
Cut threads.....50-10 per cent off list
Larger and longer sizes.....45-5 per cent off list
Machine bolts, c.p.c. and t. nuts, ⅜ in. x 4 in.:
Smaller and shorter.....40-10-5 per cent off list
Larger and longer.....40 per cent off list
Carriage bolts, ⅜ in. x 6 in.:
Smaller and shorter, rolled threads...50-10 per cent off list
Cut threads.....50 per cent off list
Larger and longer sizes.....40-5 per cent off list
Lag bolts.....60 per cent off list
Plow bolts, Nos. 1, 2 and 3.....50-5 per cent off list
Plow bolts, Nos. 4 to 10.....50-5 plus 20 per cent off list
Hot pressed nuts, sq. blank.....3.10c. per lb. off list
Hot pressed nuts, hex. blank.....3.10c. per lb. off list
Hot pressed nuts, sq. tapped.....2.85c. per lb. off list
Hot pressed nuts, hex. tapped.....2.85c. per lb. off list
C.p.c. and t. sq. and hex. nuts, blank.....3.10c. per lb. off list
C.p.c. and t. sq. and hex. nuts, tapped.....2.85c. per lb. off list
Semi-finished hex. nuts:
⅝ in. and larger.....70 per cent off list
9/16 in. and smaller.....75-10 per cent off list
Stove bolts in packages.....75-10 per cent off list
Stove bolts in bulk.....2½ per cent extra
Tire bolts.....60-10 per cent off list
The above discounts are from July 21 and Aug. 4, 1919.
All prices carry standard extras, Pittsburgh basis.

Wire Rods

No. 5 common basic or Bessemer rods to domestic consumers, $52; chain rods, $60; screw, rivet and bolt rods and other rods of that character, $60. Prices on high carbon rods are irregular. They range from $65 to $75, depending on carlons.

Railroad Spikes and Track Bolts

Railroad spikes 9/16 in. x 4½ in. and heavier, and small spikes, per 100 lb., $3.35 in lots of 200 kegs of 200 lb. each or more; track bolts, $4.35 per 100 lb. in carload lots of 200 kegs or more, and $4.90 in small lots. Boat and barge spikes, $3.85 per 100 lb. in carload lots of 200 kegs or more, f.o.b. Pittsburgh.

Terne Plates

Prices of terne plate are as follows: 8-lb. coating, 200 lb., $13.80 per package; 8-lb. coating, I. C., $14.10; 12-lb. coating, I. C., $15.80; 15-lb. coating, I. C., $16.80; 20-lb. coating, I. C., $18.05; 25-lb. coating, I. C., $19.30; 30-lb. coating, I. C., $20.30; 35-lb. coating, I. C., $21.30; 40-lb. coating, I. C., $22.30 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars at 2.35c. from mill. Prices on bar iron are 2.75c.

Wrought Pipe

The following discounts are to jobbers for carload lots on the Pittsburgh basing card.

Butt Weld

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
⅛, ¼ and ⅜	50½	24	⅛ and ¼	29½	2½
½	54½	40	⅜	30½	3½
¾ to 3	57½	44	½	34½	16½
			¾ to 1½	30	23½

Lap Weld

2	50½	38	1¼	24½	9½
2½ to 6	53½	41	1½	31½	17½
7 to 12	50½	37	2	32½	18½
13 and 14	41	..	2½ to 6	34½	21½
15	38½	..	7 to 12	31½	18½

Butt Weld, extra strong, plain ends

⅛, ¼ and ⅜	46½	29	⅛, ¼ and ⅜	28½	11½
½	51½	39	½	33½	20½
¾ to 1½	55½	43	¾ to 1½	39½	24½
2 to 3	56½	44			

Lap Weld, extra strong, plain ends

2	48½	37	1¼	25½	10½
2½ to 4	51½	40	1½	31½	17½
4½ to 6	50½	39	2	33½	20½
7 to 8	46½	33	2½ to 4	35½	23½
9 to 12	41½	28	4½ to 6	34½	22½
			7 to 8	26½	14½
			9 to 12	21½	9½

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variations in weight of 5 per cent.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers have been seven (7) points lower (higher price) than carload lots, and on butt and lap weld galvanized iron pipe have been nine (9) points lower (higher price).

Boiler Tubes

The following are the prices for carload lots, f.o.b. Pittsburgh:

Lap Welded Steel		*Charcoal Iron*	
3½ to 4½ in.	40½	3½ to 4½ in.	—16
2½ to 3¼ in.	30½	3 to 3¼ in.	— 1½
2¼ in.	24	2½ to 2¾ in.	+ 1
1¾ to 2 in.	19½	2 to 2¼ in.	+10
		1¾ to 1⅞ in.	+20

Standard Commercial Seamless—Cold Drawn or Hot Rolled

	Per Net Ton		Per Net Ton
1 in.	$327	1¾ in.	$207
1¼ in.	267	2 to 2½ in.	177
1⅜ in.	257	2¾ to 3¾ in.	167
1½ in.	207	4 in.	187
		4½ to 5 in.	207

These prices do not apply to special specifications for locomotive tubes nor to special specifications for tubes for the Navy Department, which will be subject to special negotiation.

Sheets

Makers' price for mill shipments on sheets of United States standard gage in carload and larger lots are as follows:

	Cents per lb.
Blue Annealed—Bessemer	
No. 8 and heavier	3.50
Nos. 9 and 10 (base)	3.55
Nos. 11 and 12	3.60
Nos. 13 and 14	3.65
Nos. 15 and 16	3.75
Box Annealed, Ore Pass Cold Rolled—Bessemer	
Nos. 17 to 21	4.15
Nos. 22 to 24	4.20
Nos. 25 and 26	4.25
No. 27	4.30
No. 28 (base)	4.35
No. 29	4.45
No. 30	4.55
Galvanized, Black Sheet Gage—Bessemer	
Nos. 10 and 11	4.70
Nos. 12 and 14	4.80
Nos. 15 and 16	4.95
Nos. 17 to 21	5.10
Nos. 22 to 24	5.25
Nos. 25 and 26	5.40
No. 27	5.55
No. 28 (base)	5.70
No. 29	5.95
No. 30	6.20
Tin-Mill Black Plate—Bessemer	
Nos. 15 and 16	4.15
Nos. 17 to 21	4.20
Nos. 22 to 24	4.25
Nos. 25 to 27	4.30
No. 28 (base)	4.35
No. 29	4.40
No. 30	4.40
Nos. 30½ and 31	4.45

PERSONAL

Charles P. Perin, senior member of the consulting engineering firm of Perin & Marshall, is again at the head office at 2 Rector Street, New York, after an absence of two years which has necessitated journeys between India and England on account of war work chiefly in connection with the Tata Iron & Steel Co., India.

C. E. Hildreth, president Whitcomb-Blaisdell Machine Tool Co., Worcester, has resigned as director of the machine tool section of the department of sales of the War Department. He has returned to his duties in Worcester. V. C. Kylberg, the assistant chief, is temporarily in charge of the section.

Harold A. Wright, factory representative of a general line of machine tools, has opened an office in Room 1101, Scollay Building, 40 Court Street, Boston. For five years Mr. Wright was sales manager of the Hendey Machine Co., Torrington, Conn.

Guy D. Anderson has been appointed general sales manager of the coke department of the Reilly-Peabody Fuel Co., Frick Building, Pittsburgh. He has been with the Reilly-Peabody company for some time and succeeds T. J. Atkinson, who has resigned.

Sergeant Paul Mitchell, provisional supply depot, American Expeditionary Force, France, has returned to Chicago and resumed his duties as traveling representative for the Independent Pneumatic Tool Co., 600 West Jackson Boulevard. He will travel out of the Chicago sales offices, as formerly.

The Chicago Pneumatic Tool Co. announces the appointment of J. L. Canby as district manager of sales at Chicago, succeeding Nelson B. Gatch, who has been transferred to New York as district manager of sales.

Robert H. Young, of Fort Worth, Tex., has resigned as purchasing agent of the Southwestern Mechanical Co. to become the Texas district sales agent of the Alan Wood Iron & Steel Co., Philadelphia.

J. H. Jackson, formerly production engineer for the Sharples Separator Co., West Chester, Pa., was recently discharged after 18 months' service as a lieutenant in the army and has been made sales manager of the Pittsburgh Gear & Machine Co., Pittsburgh, succeeding W. H. Thompson.

Charles D. Reeve has been placed in charge of the new Grand Rapids, Mich., office of the Wilcox Pressed Steel Co., Chicago, manufacturer of hardware specialties.

The partnership of Waldron & Van Winkle, industrial engineers, 37 Wall Street, New York, has been formed by Frederick A. Waldron, consulting engineer, and Capt. Edward A. Van Winkle, who served 18 months as regimental engineer officer of the Twenty-fourth Engineers in France, where he had charge of most of the design of the large engineer depot erected at Is-sur-tielle.

George F. Eldridge, of B. Nicoll & Co., New York, sails for England Aug. 30 on a business trip.

Frederick M. Risler has been appointed manager of an office which the Gardner Machine Co., Beloit, Wis., manufacturer of grinding and polishing machinery, has opened at 6 Church Street, New York.

B. F. Bart, district sales manager, has been placed in charge of the new office of the Standard Seamless Tube Co., Pittsburgh, at Room 1232, 154 Nassau Street, New York.

A. W. Thompson resigned as president of the Inland Steel Co., Chicago, and P. D. Block, vice-president was elected president at an adjourned quarterly meeting of the directors. L. E. Block, vice-president, was elected chairman of the board, a new office, and G. H. Jones, vice-president, was elected first vice-president. E. M. Adams, secretary; E. J. Block, assistant to vice-president, general purchasing agent and assistant secretary and assistant treasurer; and H. C. Jones, assistant to vice-president, were elected vice-presidents. L. E. Block will continue treasurer of the corporation. D. P. Thompson, assistant to vice-president, becomes assistant to the president, and J. W. Lees, superintendent of the Indiana Harbor plant, has been appointed works manager.

Albert A. Smith of Albert Smith & Co., foundry engineers and machinery merchants, Glasgow, Scotland, sailed for the United States the latter part of July to visit American manufacturers of labor-saving machinery applicable to the foundry and pattern shop, which might be marketed in Great Britain.

Clarence H. Howard, president Commonwealth Steel Co., has returned to St. Louis after his trip of inspection of the devastated regions of France and Belgium and visits to England and Scotland.

William P. Anderson has been appointed assistant general manager of the Olds Motor Works, Lansing, Mich. For the last two years he has been general factory manager with the Wright-Martin Aircraft Corporation, New Brunswick, N. J.

Capt. W. L. Tedford has been appointed European representative of the Commonwealth Steel Co., St. Louis, with headquarters in Paris. He was honorably discharged from the army in May.

H. W. Hebb has resigned as purchasing agent for the Merrill-Stevens Shipbuilding Corporation at Jacksonville, Fla., and will engage in the marine railroad and contractors' supply business under the name of H. W. Hebb Supply Co., Inc., Jacksonville.

Alexander Karminski of Victor E. Karminski & Co., Inc., steel exporters, 291 Broadway, New York, will leave August 16 on the Orduna for England and the Continent in the interest of his firm, to stay about six months.

President Clarence H. Howard of the Commonwealth Steel Co., St. Louis, delivered an address to the St. Louis Council, Boy Scouts of America. He is president of the local scout organization.

Clarence J. Loftus, counsellor in patent and trade mark causes with Parkinson & Lane for the past eight years, has removed to 1434 Marquette Building, Chicago, where he will continue his practice.

Drs. T. Dantzig, G. A. Pfeiffer, and J. F. Ritt have formed Dantzig, Pfeiffer & Ritt, consulting mathematicians, 500 West 116th Street, New York, to undertake solving industrial problems in which a knowledge of mathematics may be necessary. Dr. Dantzig is a graduate of the University of Paris and the Ecole Supérieure d' Aéronautique et de Construction Mécanique. He has taught at Indiana University and Columbia. Dr. Pfeiffer received a degree of mechanical engineer from the Stevens Institute of Technology and the degree of doctor of philosophy from Columbia. He has taught mathematics at Harvard, Princeton and Columbia. He is associate editor of the *Annals of Mathematics*. Dr. Ritt took the degree of Ph.D. at Columbia, was for three years at the Naval Observatory and has taught mathematics at Columbia. During the war he was one of the chief ballisticians in the ordnance department.

George W. Short, vice-president and general superintendent Sharon Steel Hoop Co., Sharon, Pa., has resigned to take effect Aug. 30. No successor has yet been named. Mr. Short will continue to reside in Sharon and will take a much needed rest before again embarking in business.

N. S. Braden, former sales manager, has just recently been elected vice-president of the Canadian Westinghouse Co., Ltd., Hamilton, Ont. H. M. Bostwick, assistant sales manager, has been appointed sales manager to fill the vacancy created by Mr. Braden's promotion.

C. W. Bretland, who has been in charge of similar work for some time in the Pittsburgh office of the company, has been made structural sales agent of the Bethlehem Steel Co. at the New York office, 111 Broadway, succeeding A. M. Conneen, Jr., who resigned to become vice-president and manager of the Hedden Iron

Construction Co., steel fabricator, New York, as announced in this column last week.

S. H. Hedges has been named purchasing agent of the Republic Iron & Steel Co., succeeding C. I. Sterritt who has resigned.

New Sheet Mill to Use Powdered Coal

The Falcon Steel Co., which is erecting a new sheet mill at Niles, Ohio, with eight stands of electrically driven rolls, will use powdered coal as fuel in sheet and pair furnaces as well as a slabbing furnace, two double-box double-chamber annealing furnaces, three galvanizing kettles and powerplant boilers. A blue annealing furnace will be included. The initial installation of coal-preparing apparatus will consist of a complete 5-ton coal pulverizing plant, including the necessary coal crusher, elevators, crushed coal bin, Ruggles-Coles dryer and Raymond mill, together with powdered coal hoppers for storing powdered coal at the furnaces, powdered coal feeders, burners, etc. The pulverized coal will be transported from the milling plant through standard 4-in. wrought pipe to storage bins in the power house and throughout the mill by the Quigley compressed air system. The contract for the fuel equipment has been awarded to the Quigley Furnace Specialties Co., New York. It is expected that this mill will be in operation by Jan. 1.

Cherrying Attachment for Milling Machines

An improved cherrying attachment adapted to their different sizes of vertical milling machines has been placed on the market by the Becker Milling Machine Co., Hyde Park, Boston. This attachment is clamped to the outside barrel or head of the milling machine. Drive is by bevel gears with a special bevel gear threaded to the spindle which drives through spur gears to the cutter arbor. The minimum diameter cutter which can be used is 1 in. and the maximum 6 in. diameter. To allow for the adjustment of different size cutters, an adjustable bracket is furnished with an idler gear for engaging the gear teeth on the cutter. The attachment is arranged with a graduated plate so that it can be swiveled to 360 deg.

OFFICE CHANGES

The D. Nast Machinery Co., Philadelphia, has been appointed sales representative of the Cleveland Milling Machine Co., Cleveland Machine Tool Co., Cleveland Planer Co., Cleveland, and the Rivett Lathe & Grinder Co., Boston. The Nast Company is arranging to carry in its display rooms, Bourse Building, complete lines of the companies' products. The display will include high power milling machines, profile grinders, drilling machines, open side planers, lathes and grinders.

The Chicago sales office of the Green Engineering Co., East Chicago, Ind., has been taken over by Bull & Livensparger, sales representatives. E. H. Bull and D. A. Livensparger have been connected with the Green company for several years. The Green Engineering Co. manufactures Green chain grate stokers, Sealflex arches, steam jet ash conveyors and cast iron ash tanks.

T. L. Dodd & Co., 80 East Jackson Boulevard, Chicago, has been appointed western sales representative of the Worth Steel Co., Claymont, Del., manufacturer of fire box steel plates, boiler and tank plates.

De Remer-Blatchford Co., Chicago, is the successor to the Spencer Otis Co., railroad supplies, and the address, as heretofore, is at 747 Railway Exchange Building.

A hollow wire solder containing a rosin flux core inside the wire solder is made in different sizes by the Chicago Solder Co., Chicago. The rosin flux is said to be non-corrosive.

OBITUARY

ALBERT VICKERS, former chairman of Vickers, Ltd., British steel manufacturer, who died recently in England at the age of 80, had been connected with the company for 64 years, having retired last September on account of ill health. He was the third son of the late Edward Vickers, a partner in the firm of Naylor, Vickers & Co., which was taken over by Vickers, Sons & Co. in 1867. He joined his father's company in 1854 and two years later he and his brother, Col. E. T. Vickers, took over from their father the management of the company's works in Sheffield, the former taking charge of the technical management, the latter supervising the financial and administrative affairs of the company. Through their efforts the scope of manufacture of the company was extended to embrace naval and mercantile shipbuilding, marine engineering, ordnance manufacture, armor making, mechanical and electrical engineering, artillery, airship, submarine and aeroplane building and production of chemicals. Albert Vickers was one of the oldest members of the Institution of Mechanical Engineers, which he joined in 1865. About the same time he was elected an associate of the Institution of Civil Engineers, and later he joined the Institution of Naval Architects. Mr. Vickers founded a gold medal and premium for papers read each year at the Institution of Mechanical Engineers. He established works in Japan, Italy, Spain, Canada and South America.

HENRY R. MOORE, general traffic manager Republic Iron & Steel Co., died suddenly Aug. 8 at the Youngstown, Ohio, Country Club. He had been in failing health for several months from heart disease and arteriosclerosis, but had been at his office every day. He was one of the most widely known industrial traffic managers in the country, serving the Republic company in that capacity since its organization about 20 years ago. In recent years Mr. Moore took an important part in the preparation of some of the principal rate cases brought before the Interstate Commerce Commission. He was born in February, 1856, in Warrensville, near Cleveland. Before joining the Republic company he served the Lake Shore Railroad as division freight agent at Cleveland and the Cleveland, Canton & Southern Railroad as general freight agent. During the war he was chairman of the committee which supervised freight movement in the Youngstown district. Mr. Moore was a member of the Duquesne and Traffic clubs of Pittsburgh and the American Iron and Steel Institute, being a member of the traffic committee.

EDWARD P. BATES of E. P. Bates Co., Syracuse, N. Y., founder of the Technology Club of that city, died in Butte, Mont., Aug. 3 of heart disease. He was engaged in the heating and ventilating contracting business and incidental supply lines and was a member of the American Society of Mechanical Engineers and the American Society of Naval Architecture and Marine Engineers.

MAURICE L. THOMAS, son of William S. Thomas, vice-president Wagner Electric Co., St. Louis, died at his home, 25 Windermere Place, Aug. 4, of spinal meningitis. He was 26 years old, a graduate of the University of Illinois, and was a production foreman at the Wagner plant.

President John Brophy, district No. 2, United Mine Workers of America, after addressing a meeting of Johnstown, Pa., miners, sent to President Wilson a telegram asking the chief executive to induce the Cambria plant of the Midvale Steel & Ordnance Co., "to confer with representatives of organized labor for the purpose of industrial peace." President Brophy alleges thousands of workers were discharged following the organizing of labor unions, and says industrial disturbances will inevitably follow if the steel company continues to refuse to meet representatives of the organized workers. The Midvale company has a collective bargaining organization sanctioned by the company last October.

SHORT TRADE ITEMS

The Otis Elevator Co.'s new "micro-drive" automatic leveling elevator, installed for freight handling at the United States Army supply base at Brooklyn, N. Y., is a device for stopping and holding freight elevators at floor level under all conditions. The main machine is driven by a two-speed alternating current motor, which is controlled by the main electro-magnetic controller. The micro-drive has a motor about one-tenth the size of the main motor, which is connected to the main machine through a revolving electric brake. When the elevator approaches to within a few inches of the floor, the drive is shifted to the micro-drive, and the slow speed obtained results in the car stopping level with the landing, even when loaded to full capacity (10,000 lb.). When the position of the car shifts, due to lengthening or contracting of the cables, the micro-drive serves to restore it to the landing level.

The Merchant Shipbuilding Corporation has taken over by merger the Chester Shipbuilding Co., Ltd. For some time the former corporation has been the sole stockholder of the Chester company, and the directors and executive officers of the two corporations have been the same, so that no change in management or control will result from the merger. As the yard at Bristol, Pa., is operated by the Merchant company as agent of the United States Shipping Board, Emergency Fleet Corporation, its operations will be kept separate from those of the yard of the Chester company, and each yard will have its own local operating staff. All shipments of materials and supplies purchased by the Chester Shipbuilding Co., Ltd., should be consigned and billed to Merchant Shipbuilding Corporation, Chester Yard, Chester, Pa.

That American manufacturers are not realizing the opportunities of industrial moving picture films to send to South America is the claim of Harry Levey, manager industrial department, Universal Film Mfg. Co., 1600 Broadway, New York. During the war England made 1,500,000 ft. of industrial films to rush out when world trade opened. The Bureau of Commercial Economics, an altruistic organization, he says, sent 250,000 ft. of film furnished by English and Japanese industries to South America last week, while only 65,000 ft. of American industrial films are going every month.

A new invention called "Conducting Aluminum," has been made by Dr. Georges Giulini, according to U. S. Consul Philip Holland at Basel, Switzerland. This new metal is said to be produced by putting ordinary aluminum through a special patented process, by which it acquires the same mechanical qualities and capacities as bronze, copper and brass without changing its specific weight. It is said that the price of the new metal can be kept within very low limits.

The "Journal of Better Bearings" is the title of an eight-page publication of the Damascus Bronze Co., Pittsburgh. The booklet is to be issued at regular intervals for the stated purpose of bringing the users of bearings into closer touch with the products of the company.

An analysis of profit sharing has been issued by Mallory, Mitchell & Faust, Inc., Security Building, Chicago, under the form of a seven-page folder. It contains a brief statement of the various plans comprised under this general scheme of industrial benefits, together with a survey of the extent to which each has been in vogue in the United States. A bibliography of the subject is also included.

Building in Cleveland and surrounding towns is much more active than it was a year ago. Building statistics for the Cleveland district for July show permits amounting to $8,010,803, a gain of 410 per cent over the amount for July, 1918, when permits amounted to $1,948,010.

NEW TRADE PUBLICATIONS

Hydraulic Machinery.—Camden Iron Works, Camden, N. J. Four bulletins devoted to hydraulic machinery for boiler shops, railroads, shipyards and rubber mills, respectively. The first three bulletins are devoted to valves, presses, riveters and other hydraulic machines peculiar to each industry. The bulletin on machines for rubber mills includes accumulators, pumps, heater presses, tire bead presses, steam platen presses, belt presses, tire forcing presses, operating valves, etc. The bulletins are profusely illustrated.

Furnaces and Ovens.—Holcroft & Co., Detroit. Catalog. Pictures and describes ovens and furnaces the company are building, which include open-hearth furnaces of various sizes and types, annealing furnaces, malleable melting furnaces, non-ferrous melting furnaces, core and mold ovens.

Gasoline Tractors.—Clark Tructractor Co., Chicago. Catalog. Illustrates and describes gasoline-operated tractors for factory and foundry use. Numerous views showing commercial applications are presented.

Lift Trucks.—Stuebing Truck Co., Cincinnati. Catalog. Devoted to a description of a lift truck for inside trucking. Numerous illustrations show the truck in use for different purposes.

Electric Air Compressors, Drills and Valve Grinders.—Black & Decker Mfg. Co., 105 South Calvert Street, Baltimore. Catalog. Concerned with a line of electric air compressors, portable electric drills and electric valve grinders. The various devices are described and illustrated, and specifications are given.

Soot Cleaners.—Vulcan Soot Cleaner Co., Du Bois, Pa. Catalog. Concerned with a steam jet soot cleaner employing a diagonal method for removing soot from the tubes of horizontal water tube boilers. Line drawings and halftones show the details of construction and the operation of the cleaner.

Buffing and Polishing Compositions.—A. P. Munning & Co., 50 Church Street, New York, Bulletin 1000. Describes abrasives, greases used in making molded buffing compositions, and buffing compositions, and gives information as to the proper use of the company's various brands of buffing and polishing compositions. The products are illustrated.

Cooper Hewitt Electric Lamps.—Cooper Hewitt Electric Co., Eighth and Grand streets, Hoboken, N. J. Bulletin 78-B. Describes the Cooper Hewitt electric lamps made for photographic processes and shows numerous installations and photographs obtained by the use of these lamps.

Steel Forms for Concrete Work.—Metal Forms Corporation, Milwaukee. Catalog. Describes Metaform, the company's interlocking steel forms made for monolithic concrete work. The forms are pictured and described and various applications are shown.

Gas Producers.—Camden Iron Works, Camden, N. J. Catalog. Concerned with mechanical producers, hand-poked producers, fuel feeders, also equipment for cleaning gas plants and water gas plants. Line cuts and halftones of the various items are included.

Centrifugal Pumps.—Dayton-Dowd, Quincy, Ill. Bulletin 240. Concerned with single stage, double suction volute centrifugal pumps. The pumps are described in detail and are shown arranged for belt drive, direct-connected to electric motors, and direct-connected to high speed gasoline engines. Characteristic curves obtained from tests are included.

Chain Drives.—Morse Chain Co., Ithaca, N. Y. Catalog 14. Describes chains made with a rocker-joint, designed to give silent rolling friction. Photographs showing installations of chain drives transmitting 100 hp. up to 5000 hp. are reproduced.

Ball Retainers and Ball Thrust Bearings.—Gwilliam Co., 253 West Fifty-eighth Street, New York. Bulletin 2. Gives dimensions of the company's line of ball retainers, and S. A. E. standard inch sizes of ball thrust bearings.

Drills.—Sullivan Machinery Co., 122 South Michigan Avenue, Chicago. Booklet 118. Devoted to hammer drills and rock drills for rock excavations in mine, quarry or public work. Numerous applications are portrayed.

Locomotive Crane.—United States Crane Co., 122 South Michigan Avenue, Chicago. Bulletin 190. Describes in detail a 20-30 ton locomotive crane for grab bucket, hook block or magnet service. Views of the crane equipped with the various devices and details of the operating mechanism are shown.

Scoop Conveyor.—Portable Machinery Co., Passaic, N. J. Leaflet. Describes, illustrates and compares the conveyor made by this company and one made by another concern.

Machinery Markets and News of the Works

DEMAND BROAD AND ACTIVE

Labor Agitation Both East and West

Middle West Not Over-Sanguine About Export Prospects—Sees German Revival

The machine-tool and allied lines are doing well and it is apparent that, aside from the tender situation in labor, the industry is in a healthy condition. That the trouble, or threatened trouble, with labor is widespread is indicated by the fact that both Boston and Chicago refer to it, while New York points to strikes of machinists in Bridgeport, Conn., and Paterson, N. J.

In New York activity has let down a little, but this is not true elsewhere. Prospective business in cranes is a feature in New York, the American Locomotive Co. having issued a list of thirteen which, it is expected, will be followed by a call for machine tools.

In Cleveland there is continued activity on the part of the automobile makers, two of whom, the F. B. Stearns Co. and the Grant Motor Car Corporation, have plans under way to double the size of their plants.

Cincinnati reports that the machine-tool trade is not over-optimistic in regard to exports to Europe, having concluded that German competition will be felt much earlier than was expected, while Great Britain will be able to a great extent to supply her home market. Orders for export are not numerous. The jobbing foundries in Cincinnati are busy.

Chicago cites many good orders and prospects of a diversified character. In Milwaukee the aggregate of business is satisfactory. In that city notable activity is being shown by the makers of castings, including gray iron, malleable and steel.

Proposed freight terminals at Mississippi River points will eventually call for large quantities of cranes and other freight handling equipment to be placed at about ten terminals. A plan is now being worked out by M. Meigs, United States engineer in charge of river improvements, while builders of freight handling equipment, through their association, the Material Handling Machinery Manufacturers' Association, will present methods of their own design.

The New Departure Coaster Brake Co., a subsidiary of the General Motors Corporation, will occupy a five-story building to be erected at Buffalo.

Throughout the country, as the market items disclose, some pleasing plant construction and extensions are under way, or projected.

New York

NEW YORK, Aug. 12.

Shop workers' strikes may have been partly responsible for a slight let-down in machine-tool buying during the past week. At any rate several sellers noted not only a reduced volume of sales but a smaller number of inquiries. Bridgeport, Conn., and Paterson, N. J., are two of the nearby cities most seriously affected by strikes among machinists and foundrymen.

The Moline Plow Co., Poughkeepsie, N. Y., bought about $25,000 worth of new equipment last week. The Trumbull Electric Mfg. Co., Plainville, Conn., has issued a list of about 20 small and medium-sized second-hand tools which it wants to buy. The Nelson Blower & Furnace Co., Boston, Mass., is figuring on considerable new equipment. Quite a number of quotations have been furnished the American Can Co., New York, but no buying has been done as yet. The New York Central Railroad has bought a few shop tools.

Among the inquiries for cranes now before the trade, the largest comes from the American Locomotive Co., which wants 13 of various capacities for three of its plants. Expansion of this company's facilities will probably include also the purchase of new machine-tool equipment.

The Material Handling Machinery Manufacturers' Association, 35 West Thirty-ninth Street, New York, is working through its members on the proposed freight terminals for the Mississippi River, which, if built, will involve the purchase of hundreds of thousands of dollars' worth of cranes and other material-handling equipment. The problem of providing adequate freight terminals at about 10 points along the river has been worked out by M. Meigs, United States civil engineer in charge of river improvement between St. Louis and St. Paul. Builders of material-handling equipment, through the association, will present other methods of handling freight at these terminals. It may be some months, however, before the plan has approached the point of equipment purchasing.

The J. Cutter Iron Works, Inc., 247 Norman Avenue, Brooklyn, has had plans prepared for a two-story shop with office, 60 x 90 ft., at Lombardy Street and Vandervoort Avenue, to cost about $14,000.

E. Kaufman & Co., New York, have been incorporated with a capital stock of $100,000 by E. Kaufman, P. W. Hatfield and A. W. D. Hogg, 256 Church Street, to manufacture iron and steel.

Parish & Bingham, Inc., New York, has been incorporated with an active capital of $750,000 by R. D. Bennett, J. Scott and F. E. Sturgis, 14 Wall Street, to manufacture automobile frames and parts.

The Borden's Condensed Milk Co., 108 Hudson Street, New York, will make alterations in its two-story machine shop at 48-50 Watt Street at a cost of $4,000.

S. Blickman, 199 Lafayette Street, New York, manufacturer of coffee urns, has awarded a contract to Levering & Garrigues, 552 West Twenty-third Street, for his proposed two-story plant, 100 x 100 ft., at Nott Avenue and Manly Street.

The Peters-Morse Mfg. Corporation, New York, has been incorporated with a capital stock of $125,000 by F. L. Morse, J. F. Miller and J. H. Barr, 374 Broadway, to manufacture addressing, listing and other machines.

The Star Light Auto Signal Co., New York, has been incorporated with a capital stock of $150,000 by B. A. Maclean, R. V. W. Vandervoort and R. S. Baker, 37 Wall Street, to manufacture signals, etc.

The A. R. Purdy Co., 127 Christopher Street, New York, iron and steel, has increased its capital from $10,000 to $100,000.

The Squires Tire & Rubber Co., Richmond Hill, L. I., has been incorporated with a capital stock of $250,000 by C. H. and A. C. Squires, Richmond Hill, to manufacture automobile tires, etc.

The Copp Auto Body Co., New York, has been incorporated with a capital stock of $25,000 by Carl J. Austrian, W. C. Bode and George W. Copp, 236 West Thirty-fourth Street, to manufacture automobile bodies.

The One Hundred and Tenth Street-Lenox Avenue Garage, New York, has leased the building now being constructed at the corner of St. Nicholas Avenue and 111th Street for a new automobile service works and repair shop. It is planned to have the structure ready for occupancy in October.

The Collins' Motors, Inc., Huntington, Long Island, N. Y., has been incorporated with a capital stock of $400,000 by D. C. Lawrence, Freeport; C. H. Stoll, Hicksville; and H. Mensher, 646 Bushwick Avenue, Brooklyn, to manufacture automobile motors, parts, etc.

The Coyne & Delany Co., 832 Kent Avenue, Brooklyn, manufacturer of plumbing specialties, is planning for a new three-story plant, 50 x 120 ft., at Flushing and Mt. Olivet avenues, to cost $70,000.

The Century Metal Bed Corporation, Brooklyn, has been incorporated with a capital stock of $25,000 by C. Cartoon, M. Baumgarten and M. Feldesh, 938 Eastern Parkway, to manufacture metallic bedsteads.

Property of the Atlantic Welding Corporation, 61 Broadway, New York, will be sold by Francis P. Garvan, alien property custodian, including the entire capital stock.

The United States Rubber Co., Broadway and Fifty-eighth Street, New York, manufacturer of tires, mechanical rubber goods, etc., has arranged for an increase in its capital from $120,000,000 to $300,000,000.

The West Fiftieth Street Garage Corporation, 412 West Thirty-eighth Street, New York, will build a two-story automobile service works and repair shop, 50 x 105 ft., at 540 West Fifty-second Street, to cost about $20,000.

The Auto Sales Co., 96 Spring Street, New York, manufacturer and operator of vending machines, has leased about 30,000 sq. ft. of space in the reinforced-concrete factory now in course of erection at Van Alst Avenue and Thirteenth Street, Long Island City, N. Y.

The Whitehall Engineering & Machine Co., Whitehall, N. Y., has been incorporated with a capital of $10,000 by M. and J. and S. J. Goodkin to manufacture machinery, etc.

The Adirondack Steel Foundries, Inc., Colonie, N. Y., has increased its capital to $1,600,000.

Reece-Hilton, Inc., Troy, N. Y., has been incorporated with a capital stock of $50,000 by R. and A. L. Reece, and R. C. Hilton, to manufacture tools and machinery.

The Schedler-Murphy Iron & Steel Co., Phillipsburg, N. J., has been incorporated with a capital stock of $50,000 by Thomas E. Murphy and Peter M. R. Schedler, to manufacture iron and steel.

The Filtration Engineers, Inc., Montclair, N. J., has been incorporated with a capital stock of $80,000 by G. H. Caffrey, Brooklyn; F. W. Young, Verona, N. J.; and H. E. Kinner, Yonkers, N. Y., to manufacture filtration equipment, engines, etc.

The Gilby Wire & Dye Co., 11 Passaic Street, Harrison, N. J., has been incorporated with a capital stock of $125,000 by Walter and Stanley Gilby, and Thorold W. Pell, to manufacture wire products.

The International Ceiling Co., Clifton, N. J., has broken ground for an addition to its plant on Hazel Street.

The Safety Aeromobile Corporation, Jersey City, N. J., has been incorporated in Delaware with a capital stock of $5,000,000 by Robert A. Van Voorhiss, Jersey City; and H. A. Bingham, Oradell, N. J., to manufacture airplanes and parts.

William E. Quimby, Inc., 209 Parkhurst Street, Newark, N. J., manufacturer of electric-operated pumping equipment, etc., has filed plans for a two-story addition, 48 x 92 ft., to cost $18,000.

The Newark Metal Findings Co., Newark, N. J., has been incorporated with a capital stock of $25,000 by William Bittner, Glen Ridge, N. J.; C. S. Herden Rich, Brooklyn; and P. H. Burr, New York, to manufacture metal products.

The G. & H. Whistle Co., 92 Market Street, Newark, N. J., has filed notice of organization to manufacture automobile whistles, etc. Vernon Gould, 131 South Parkway, East Orange; and George F. Hall, 83 Plane Street, Newark, head the company.

The Hillside Tool & Die Co., Hillside, Newark, N. J., has been incorporated with a capital stock of $50,000 by Frederick N. and S. L. Raymond, and William S. Parsons, to manufacture dies, tools and machine parts.

The Metal Parts Co., 207 Market Street, Newark, N. J., has filed notice of organization to manufacture machine and metal parts. John J. Turteltaub, 678 Hunterdon Street, heads the company.

The Newark Sinker Co., 12 Napoleon Street, Newark, N. J., has filed notice of organization to manufacture fishing lead specialties, etc. Clarence Meyers heads the company.

The Arrow Brand Tool Corporation, New York, has been incorporated with a capital stock of $800,000 under Delaware laws by Robert A. Van Voorhiss, W. E. Schells, Jr., and Arthur R. Oakley, Pearl River, N. Y., to manufacture tools, molds, etc.

F. G. Hall, 823 Boyd Street, Watertown, N. Y., has acquired a building on State Street, and plans the establishment of a machine shop.

The Reading Engineering Co., New York, has been incorporated with a capital stock of $25,000 by W. W. Letts, J. M. Dennis, Mt. Vernon, N. Y.; and E. R. Reading, 915 East Nineteenth Street, Brooklyn, to manufacture machinery, etc.

Machinery Merchants, Inc., 50 Church Street, New York, has changed its name to Morey & Co., Inc.

Rylander & Asplund, Stockholm, Sweden, are inquiring for two special machines for turning crankshaft pins of two-, four-, and six-throw crankshafts with a pin diameter up to 75 mm., length of pin up to 140 mm., crank radius up to 100 mm.

Philadelphia

PHILADELPHIA, Aug. 11.

The T. S. Johnson Sons Co., 622 Cherry Street, Philadelphia, manufacturer of roofing, will build a two-story addition to its plant, 32 x 48 ft., brick and steel. The structure will be used as a shop.

The Department of Public Works, Philadelphia, has had plans prepared for a one-story electric-operated pumping plant at the city waterworks, Lardners Point.

The Keystone Wagon Works, 1949 North Second Street, is having plans prepared for a three-story addition, 75 x 100 ft., with wing, 60 x 74 ft., at the corner of Second and Norris streets.

The Belmont Motors Corporation, Lewistown, Pa., is planning for the early operation of its local plant, to be used for the manufacture of automobile motors.

A number of electric power companies in Pennsylvania have been granted permission by the Public Service Commission to issue bonds and stock, the proceeds to be used for extensions, betterments and general operations. These companies are: The County Gas & Electric Co., Philadelphia, $1,800,000 in bonds; Philadelphia Rapid Transit Co., Philadelphia, bonds, $174,000, and equipment certificates, $88,000; Renovo Edison Light, Heat & Power Co., Renovo, $18,500; Beaver County Light Co., Pittsburgh, $24,000; Mauch Chunk & Lehighton Transit Co., Mauch Chunk, bonds, $150,000, and stock, $150,000; Eastern Pennsylvania Railways Co., Pottsville, bonds, $198,000.

The American Safety Elevator & Mine Cage Co., Marian, Pa., has been incorporated in Delaware with capital stock of $200,000, by John Hoffer, Blaine Wise and G. P. Gates.

The Chester Shipbuilding Co., Chester, Pa., has been merged with the Merchants Shipbuilding Corporation, Bristol, Pa.

The Guarantee Liquid Measure Co., Rochester, Pa., is taking bids for a two-story and basement addition, 35 x 65 ft. M. C. Fry is president.

The new plant of Moller Brothers, Lewistown, Pa., to be used for the manufacture of automobiles, will soon commence operations, with initial capacity of about ten cars a day. The works will specialize in a small car to retail at about $1,000.

The Landis Tool Co., Waynesboro, Pa., has acquired about five acres of property and a number of buildings of the Emerson-Brantingham Co., Greencastle, Pa., for extensions in its works. It is planned to construct additions to the structures and add about fifty new operatives. It proposes to handle work heretofore executed for it in other shops.

A two-story boiler plant, 90 x 100 ft., will be erected by the Duplan Silk Co., Hazelton, Pa., at its works at Nanticoke, Pa.

F. K. Trenker & Co., Millersburg, Pa., are building a machine shop for extension in production. It is expected to have the building ready for the installation of machinery in about a month.

The Capital City Iron & Steel Co., Harrisburg, capitalized at $60,000, has been formed by Wolf Freedman, Max Williams, A. Leigh Ensinger and John T. Wenyon, to manufacture iron and steel.

The Universal Machine Co., Reading, has filed notice of an increase in capital stock from $10,000 to $240,000. Charles A. Spaeth is secretary.

The Steinman Hardware Co., Lancaster, has filed notice of increase in capital stock from $100,000 to $200,000. Scott W. Baker is secretary.

The United Engine & Mfg. Co., Hanover, Pa., will increase its capital stock from $20,000 to $150,000. O. S. Trone is secretary.

The Lancaster Iron Works, Lancaster, Pa., will increase its capital stock from $300,000 to $500,000. A. C. Scully is secretary.

New England

BOSTON, Aug. 11.

Dealers report an increasing demand for upright and radial drilling machines, but more or less of stagnation for the high speed sensitive types, including ball bearing models. Vast numbers of these were ordered during the war and many remained uncrated when hostilities ceased. Milling machines and shapers are selling in increasing numbers. Apart from labor conditions the machine tool situation is excellent. New England is suffering acutely from railroad conditions which are retarding deliveries of products manufactured in the section and which threaten to interfere seriously with the receipt of needed materials. The street railroads have adjusted most of their differences with striking employees, among the most important settlements being that of the Rhode Island Co., which operates the Providence system and most of the lines in the State.

The 20th Century Automobile Water Filler Co. has been incorporated in Massachusetts to manufacture a patented apparatus for filling storage batteries of automobiles, and has made an arrangement with the Ramsdell Specialty Co., Worcester, Mass., to manufacture its product.

The Hobbs Mfg. Co., Worcester, Mass., and its parent corporation, the National Sales Machines Co., New York, have been reorganized with a number of Worcester manufacturers as officers. The Hobbs Co. manufactures paper-box mcahinery, vending machines, nut lockers and spring washers. The capital stock has been increased from $300,000 to $700,000, the total being divided between $600,000 preferred and $100,000 common stock. The new officers of the National Sales Machine Co. are: President, C. B. Manville, Johns-Manville, Co., New York; vice-presidents, Herbert A. Pike, president and treasurer Boston Pressed Metal Co., Worcester; Walter B. Clarke, New York; William J. Denholm, Worcester; treasurer, F. Stewart Andrews, New York; general manager, Arlington Moore; secretary, Linwood M. Erkskine, Worcester. The directors include Messrs. Manville, Moore, Pike, Andrews, Denholm, Clarke and Albert E. Newton, vice-president and general manager Reed-Prentice Co., Worcester; John P. Ashey, vice-president and treasurer Rockwood Sprinkler Co., Worcester; M. C. Nelson, general manager R. B. Phillips Mfg. Co., Worcester; Edgar W. Bright, Boston; Harry E. Sherwin, general manager New Era Mfg. Co., New York; executive committee, chairman, Albert E. Newton; Herbert A. Pike, John P. Ashey, M. C. Nelson and William B. Clarke. The new officers of the Hobbs Mfg. Co. are: President, C. B. Manville; vice-president, Herbert A. Pike; vice-president and treasurer, F. Stewart Andrews. The directors include these officers and John P. Ashey and William J. Denholm. It is announced that Mr. Newton will act in an advisory capacity with the National Sales Machine Co. and the Hobbs Mfg. Co. The Hobbs Co. reports business as very brisk, especially for paper-box machinery and lock nuts and washers. Increased capacity for the manufacture of the latter products will be obtained by building a new structure, 35 x 60 ft., which will house a heat-treating department.

The N. C. L. Engineering Corporation, Turk's Head Building, Providence, R. I., is inquiring for machine tools.

The Waltham Watch Co., Waltham, Mass., is reported contemplating the replacement of some of its machine-shop tools devoted to the production of watch-making machinery. A. J. Cassidy is assistant works manager.

The Autoyre Co., Oakville, Conn., manufacturer of wire products, metal stampings, etc., will build a one-story and basement addition, 60 x 100 ft. J. H. Cowles is president.

The M. B. Schenk Co., Center Street, Meriden, Conn., manufacturer of hardware, an interest of the Bassick Co., Bridgeport, is planning for the erection of a two-story addition, 50 x 64 ft., to cost about $22,000.

The Trotter-Patterson Corporation, Hartford, Conn., has been incorporated with a capital of $50,000 by H. R. Trotter, West Hartford; W. J. A. London, Springfield; and R. P. Butler, Hartford, to manufacture iron and steel products.

The Connecticut Metal & Chemical Co., New Britain, Conn., has increased its capital from $200,000 to $500,000.

The Seamless Rubber Co., Hallock Avenue, New Haven, Conn., has filed plans for the erection of the proposed three five-story additions, each 60 x 240 ft., to cost about $500,000.

The Intercontinental Truck Co. of Rhode Island, Providence, has been incorporated with a capital stock of $25,000 by James J. Nolan, 24 East George Street, and Abraham Luff, to manufacture motor trucks, parts, etc.

The Apco Mfg. Co., 702 Eddy Street, Providence, R. I., manufacturer of automobile specialties, will build a one-story addition, 80 x 200 ft., to cost about $30,000.

The Imperial Knife Co., 4 Blunt Street, Providence, R. I., has filed notice of organization to manufacture knives, cutlery, etc. Michael A. and Felix A. Mirando head the company.

The Trumbull Electric Mfg. Co., Plainville, Conn., manufacturer of electric switches, etc., will build three additions to its plant, consisting of a four-story factory, 50 x 106 ft.; two-story, 50 x 150 ft.; and one-story, 60 x 100 ft., to cost about $90,000. The General Electric Co. has recently acquired an interest in the company.

The Nevergap Co., New Haven, Conn., has been incorporated with a capital of $50,000 by A. J. Larson, Jules Bango and Peter Torello, to manufacture metal clasps, etc.

The Peck & Young Mfg. Co., Forestville, Conn., manufacturer of screw machine products, springs, etc., has increased its capital stock from $75,000 to $500,000.

Walden-Worcester, Inc., Worcester, Mass., is planning for the erection of a new four-story plant on Shrewsbury Street, 56 x 400 ft., as an extension to its present works on Commercial Street, to be used for the manufacture of wrenches. It is estimated to cost about $200,000.

The New England Wire Cloth Co., Norwalk, Conn., has been dissolved.

The Bridgeport Brass Co., Bridgeport, Conn., has plans for an extension to its foundry estimated to cost $100,000. Henry M. Lane, 701 Owen Building, Detroit, Mich., is the architect and engineer.

The Valley Falls repair shops of the New York, New Haven & Hartford Railroad, near Providence, R. I., were destroyed by fire, caused by lightning, July 27, with loss estimated at about $200,000.

The Bridgeport Pattern & Model Co., Bridgeport, Conn., has filed notice of dissolution.

The Johnson Machine Works, 11 Orange Street, New Haven, Conn., has been organized to manufacture machinery, parts, etc. F. G. Johnson is president, and T. P. Tonne, secretary and treasurer.

The L. C. Blanke Twist Drill Co., Grosvenor Street, Taunton, Mass., will build a one-story addition, 40 x 115 ft., to cost about $14,000.

The Nichols Underwear Co., Bridgeport, Conn., will erect a power house, 20 ft. sq., in connection with its new factory building. Fletcher & Thompson, Bridgeport, are the engineers.

The Jewel Belting Co., Hartford, Conn., has awarded contract to Frank Meagher, Hartford, for a five-story factory, 60 x 370 ft., two-story storage building, 60 x 170 ft., one-story leather storage building, 102 x 222 ft., and a power house, estimated to cost in all about $30,000.

The United Wire & Supply Co., Auburn, R. I., has let contract to William H. Hamlyn & Son, Providence, for a two-story factory, 40 x 250 ft., estimated to cost $100,000.

Buffalo

BUFFALO, Aug. 11.

The plant of the New Departure Coaster Brake Co., subsidiary of the General Motors Corporation, is to be moved to Buffalo, occupying a five-story steel and concrete factory built by the latter at Winchester and Northland avenues at the site of the plant of the Buffalo Metal Disc Co., which has been absorbed by the General Motors Corporation. The new building, which will adjoin the present factory, will be 150 x 332 ft. About 750 workers will be employed in the manufacture of coaster brakes for bicycles. The equipment at its former plant will be removed to Buffalo. W. J. Houck, general factory manager, will have charge of the new plant.

The Massey Automobile Co., Ogdensburg, N. Y., has purchased the Continental Building in that city and will remodel and fit it up at a cost of $50,000 for the manufacture of steam automobile trucks.

The United States Hoffman Co., Syracuse, N.Y., manufacturer of pressing machines, has purchased the foundry property of the VanWie Pump Co., Syracuse, and will fit it up for its own use.

The VanWie Pump Co., Syracuse, N. Y., will erect a new foundry and machine shop as soon as a site is selected.

The H. H. Franklin Mfg. Co., Syracuse, N.Y., has called in a $600,000 issue of preferred stock for the purpose of making an addition to its plant.

The Bruner Mfg. Co., Utica, N. Y., manufacturer of air compressors, has had plans prepared for a plant addition, 76 x 140 ft., one story, to cost approximately $15,000.

The Universal Instrument & Metal Co., Union, N.Y., has been incorporated by J. Sloan, E. Neblich and D. S. Mersereau, with a capital stock of $75,000.

The Wayland Specialty Co., Wayland, N.Y., has been organized to establish a local plant for the manufacture of metal products for automobile service, including a mechanical wheel attachment to prevent a vehicle from backing down a grade, without the use of the regular brake. Charles L. Clarke, Wayland, is president; I. J. Pillsbury, Cohocton, first vice-president; and W. N. Thwing, Wayland, second vice-president.

The Board of Public Works, Geneva, N.Y., will install new pumping machinery at the city waterworks, with capacity of about 4,000,000 gal. per day. City Engineer Brennan is in charge.

The Northwestern Telephone Corporation, Carthage, N. Y., has acquired property at North Mechanic and Spring Street, for a new two-story machine shop, 22 x 28 ft. Tools will be installed for automobile part manufacture and repair work; with adjoining garage for the company's automobiles. The structure will cost about $20,000.

The M. L. Oberdorfer Brass Co., 804 East Water Street, Syracuse, N. Y., is planning for a one-story foundry addition, to cost about $40,000.

The Syracuse Auto Parts, Inc., has been incorporated with a capital of $25,000 by F. B. Schuber, 177 Brunswick Street; F. Dean Russell, 552 Harvard Street, Rochester; and W. B. Carroll, 439 Melville Street, Irondequoit, N. Y., to manufacture automobile parts, etc.

The Upson Co., Lockport, N. Y., manufacturer of plasterboard, will build an addition to its plant, to cost about $250,000.

The new addition at the plant of the Buffalo Forge Co., 490 Broadway, Buffalo, plans for which were recently filed, will be one-story, of brick and steel, 49 x 160 ft., to cost about $14,000.

The Smith Wheel, Inc., 101 North Geddes Street, Syracuse, N. Y., manufacturer of automobile wheels, has increased its capital from $3,000,000 to $3,500,000.

The Lovell Mfg. Co., Erie, Pa., will enlarge its plant by the erection of an addition to cost $10,000.

Baltimore

BALTIMORE, Aug. 11.

A great many public garages, many of them equipped with considerable machinery, will be established in this city and vicinity. Among those who will build garages are Graham B. Hall, Remington Avenue and Twenty-ninth Street, who will build three; Edmondson Avenue Garage Co., Edmondson and Winters avenues, $3,000; Mary A. Green, 608 Greenwillow Street, $3,500; Charles A. Hicks, Park Heights and Glenn Avenue, $1,200; A. L. Hornstein, 2408 Eutaw Place, $2,000; J. H. O'Donovan, Biddle Street and Park Avenue, $4,500; H. S. Dulaney, Charles Street and Mallory Lane, $3,000; Harry W. Bishop, 1337-1339 Columbia Avenue, $6,000; A. D. Clemens, Talbott Street and Merryman's Lane, $9,000; Guilford Building Co., Calvert Street, $10,000; William Proctor, 600-602 North Patterson Park Avenue, $1,100; Christina Kelm, Sixth Street and Highland Avenue, $2,550.

The Muirkirk Iron Co., Inc., Muirkirk, Md., has increased its capital stock from $15,000 to $50,000.

Joseph L. Pearson, Keysville, Va., wants prices on used or rebuilt 15 to 20-hp. gasoline or oil engines.

C. J. Roeiker, Mutual Building, Richmond, Va., is working on plans for a two-story garage, machine shop and office building to cost $25,000.

The Bell Motor Co., Norfolk, Va., will build a garage to cost $15,000.

A garage to cost $30,000 will be built by W. L. Hayes, Anderson, S. C.

The Jones Iron Works, Rock Hill, S. C., wants prices on 20-in. engine lathes, hacksaw machines and milling machines.

The A. T. Small Quarries Co., Macon, Ga., wants prices on steel derricks with 150-ft. boom.

Reuben T. Lipscomb, National Bank Building, Norfolk, Va., is organizing a corporation which contemplates the manufacture on a large scale of a patented carwheel with removable tread. The intention is to erect a plant at Newton or Halsted Park, Berkeley.

Frank M. Krasmer, Baltimore, operating a plant at 100 Dolphin Street for the manufacture of springs, etc., has awarded a contract to the Cogswell-Koether Co., 406 Park Avenue, for a three-story addition, 26 x 78 ft.

The new addition to the plant of the Bond Mfg. Corporation, Wilmington, Del., manufacturer of bottle seals, etc., will be equipped as a machine shop. It will be one-story, 60 x 300 ft., and will cost $42,500.

Dannenhauer, Inc., Wilmington, Del., has been incorporated with a capital stock of $100,000 by William A. Dannenhauer and George H. Speakman, Wilmington, and J. A. Justice, Newport, Del., to manufacture electrical appliances.

The Speakman Supply & Pipe Co., East Thirtieth and Spruce streets, Wilmington, Del., manufacturer of pipe, plumbing fixtures, etc., has awarded a contract to John E. Healy & Sons, Wilmington, for a three-story brick addition, 60 x 180 ft., for increased capacity. Improvements and extensions will also be made in its brass foundry. Willard Speakman is president.

Gray Roland, Crawford, Ga., will establish a machine shop and automobile service works. Bids for a building to cost about $10,000, exclusive of equipment, have been taken. The machinery and tools to be installed are estimated to cost about $5,000.

The James Iron Works, Rock Hill, S. C., has been incorporated with a capital stock of $20,000 by E. G. James and associates to manufacture iron and steel products.

The Charleston Dry Dock & Ship Repair Co., Charleston, S. C., recently incorporated with a capital stock of $2,000,000, is planning for a local shipbuilding plant, to specialize in the construction and repair of steel and wood cargo vessels. The new works will be located at Remleys Point. Robert N. Reid, Winthrop H. Kellogg and Harold J. Gallegher are incorporators of the company.

The Baltimore Gas Appliance & Mfg. Co., Bayard and Hamburg streets, Baltimore, is planning to increase its present force of employees in its sheet-iron and other departments.

R. C. McKeand, Verne Street, Tampa, Fla., and associates are organizing a company to establish a local plant for the manufacture of conveying and hauling machinery. It will specialize in the production of cocoanut-handling equipment.

The Cook Mfg. Co., Charlotte, N. C., has been incorporated with a capital stock of $50,000 by W. J. Cook and J. B. Kerr, to manufacture elevator clutches, etc.

The Union Shipbuilding Co., Fairfield, Md., is considering the erection of extensions to its plant on a tract of about 40 acres.

The Miami Electric Light & Power Co., Miami, Fla., is planning for extensions and improvements for increased capacity. The work, including equipment, is estimated to cost about $200,000.

Fred R. Thompson, Staley, N. C., is planning for the establishment of a plant for the manufacture of bent plow handles, etc.

The Danville Aircraft Corporation, Danville, Va., has been incorporated with a capital stock of $25,000 by J. Allan Herman, C. Bruce Williams and Wayles Harrison, to manufacture airplanes and parts.

Pittsburgh

PITTSBURGH, Aug. 11.

The United Fuel & Iron Co., Pittsburgh, capitalized at $25,000, has been formed by Charles Yon, Corapolis; Laurence Snapp, Beaver, and Robert M. Steffler, Pittsburgh, to manufacture pig iron, mill and builders' supplies, etc.

The United Electric Stores Co., Pittsburgh, capitalized at $25,000, has been formed by William J. Hally and Henry Harris, Pittsburgh, and Michael P. Fitzgerald and Morris Harris, Wilmerding, to manufacture electrical appliances.

The New Idea Miners' Tool & Machine Co., Johnstown, capitalized at $10,000, has been formed by William Yurecsko and others.

The West Virginia Metal Products Co., Fairmont, W. Va., is completing plans for its proposed brass and copper works, estimated to cost about $1,000,000. The works will be constructed on a unit plan, with initial buildings estimated to cost about $300,000, including equipment. J. E. Watson is president.

The engine department at the power plant of Wilson & Co., Wheeling, W. Va., was destroyed by fire, Aug. 5, with loss estimated at about $10,000.

The Mackintosh-Hemphill Co., Pittsburgh, manufacturer of steel castings, electrical products, and other iron and steel specialties, has acquired about 25 acres of land at Aspinwall, as a site for a new plant. The consideration is said to be about $150,000. The company now operates a works at the foot of Twelfth Street, and is understood to be considering the removal of the present plant to the new location.

The Pittsburgh Gage & Supply Co., Pittsburgh, manu-

facturer of washing machines, etc., has arranged for the erection of a new six-story plant, 98 x 130 ft., as an addition to its present works at Thirtieth and Liberty streets.

The Mayfield Motor Co., Pittsburgh, has been incorporated with a capital stock of $50,000 by W. C. Leather, John Souant and S. R. Sharle, to manufacture automobile motors and parts.

The National Mold & Machine Works, Clarksburg, W. Va., has been incorporated with $10,000 capital stock by P. H. Koblegard and others.

The Pennsboro Drilling Tool Co., Pennsboro, W. Va., has been incorporated with $75,000 capital stock by Riley Yeates and Charles J. Kerr.

The J. E. Moss Iron Works, Wheeling, W. Va., plans to build a plant, 125 x 250 ft.

Chicago

CHICAGO, August 11.

But for labor difficulties the business outlook would be exceptionally good. The local building trades' lockout have prevented a number of purchases from reaching maturity and the strike of railroad shopmen is making freight service so uncertain as to delay many transactions on the verge of being closed. Neither of these two factors has as yet had any serious effect on the volume of business booked by dealers. The demand continues active from a great variety of manufacturers. One local dealer recently received a single order for $35,000 worth of miscellaneous equipment from a Chicago manufacturer and another dealer booked an order for 15 milling machines for delivery in the city. Other sales include seven 15-in. x 5-ft. remanufactured lathes for an automobile accessory company in Indiana, 40-in. x 24-ft. lathe for a Coffeyville, Kan., concern; 24-in. turret lathe for delivery at Houston, Tex.; 50-in. planer for a Mobile, Ala., purchaser and an 8-ft. boring mill for a Chicago company.

The Giddings & Lewis Mfg. Co., machinist and founder, Fond du Lac, Wis., has gone into the manufacture of tractor transmission and is purchasing additional machine tool equipment. It has bought one broaching machine and one boring mill. The Samson tractor plant of the General Motors Corporation, Janesville, Wis., is preparing to purchase a list of tools. The National Motor Car & Vehicle Corporation, and the Stutz Motor Car Co., both of Indianapolis, Ind., are in the market for miscellaneous tools. The Missouri, Kansas & Texas Railroad is inquiring for three machines, one of which is a 48-in. draw cut shaper with frog and switch equipment and motor drive.

There is an active demand from the oil section of the Southwest for pipe machines, long lathes and large shears.

The Government now has representatives circulating among consumers to promote the sale of used machine tools in its possession.

Deliveries are steadily getting worse, ranging from 30 to 90 days.

E. Edelman & Co., manufacturers of automobile accessories, Chicago, have purchased a tract, 217 x 700 ft., on the southwest corner of Crawford and Shubert avenues, which it will improve with a $250,000 plant, plans for which are now being prepared.

The H. Channon Co., manufacturer of contractors' tools and steam fitters' supplies, Chicago, has purchased the southwest corner of West Randolph and North Market Streets, 121 x 181 ft., and will erect a seven-story structure to cost about $400,000.

The Cook County Paper Stock Co. has had plans drawn for a large plant to be erected at Thirty-first Street and Kedzie Avenue, Chicago. The buildings projected include a one-story warehouse and factory, 600 x 1100 ft. and 300 x 950 ft; three-story and basement structure, 100 x 120 ft.; one-story and basement building, 100 x 300 ft.; one-story garage and repair machine shop, 60 x 200 ft., and a two-story office building. The estimated cost is $1,000,000.

The B. & W. Mfg. Co., manufacturer of automobile accessories, 5235 Ravenswood Avenue, Chicago, is having plans prepared for a three-story and basement plant, 50 x 125 ft.

Wolf Leibovitz, 2301 Grand Avenue, Chicago, has awarded a contract to the Behrens Construction Co., for the erection of a two-story phonograph factory, 50 x 96 ft., at North Oakley Avenue and Ferdinand Street, to cost $15,000.

The Standex Mfg. Corporation, 341 East Ohio Street, Chicago, manufacturer of automobile specialties, has awarded a contract for the construction of a two and one-story plant, 48 and 97 x 120 ft., at 2857-2905 North Western Avenue. The estimated cost is $45,000.

The Bowden Motor Corporation, 619 South La Salle Street, Chicago, has been incorporated with a capital stock of $200,000, by R. B. Shaw, J. C. Shaw and A. E. Catron.

The Motor Coach Metal Works, Inc., 2909 Indiana Avenue, Chicago, has been organized by Alfred T. Kaiser, William E. Fuller and Oscar C. Graff.

The plant of the Chicago Railway Equipment Co., Forty-fifth and Lincoln Streets, Chicago, was damaged by fire on Aug. 2, to the extent of about $25,000.

Greenlee Brothers & Co., machinists and founders, Rockford, Ill., will soon commence the construction of a $30,000 addition which will add between 15,000 and 20,000 sq. ft. of floor space to their present facilities.

The Forest City Bit & Tool Co., Rockford, Ill, is adding to its Kishwaukee Street plant at a cost of $10,000.

The Altorfer Brothers Co., manufacturer of washing machines, Peoria, Ill., is considering the removal of its plant to some other city.

The Woodstock Typewriter Co., Woodstock, Ill., has awarded a contract for the construction of a 74 x 256-ft. addition.

The Cooper Saddlery Hardware Co., Moline, Ill., has changed its name to the Moline Iron Works, and has added $500,000 capital stock to finance additions.

The Pettigrew Foundry Co., Harvey, Ill., has increased its capital stock from $75,000 to $125,000.

The plant of the Walton & Macke Wire Nail Co., Kokomo, Ind., was recently damaged by fire. Estimated loss is $25,000.

The South Bend Tin Mfg. Co., South Bend, Ind., has been incorporated with $50,000 capital stock by Martin Kaniewski, Ignac Cierpiat and Adolph Gruszczynski.

The Bower Mfg. Co., manufacturer of adjustable trailers, Fowler, Ind., recently incorporated with $100,000 capital stock, commenced the operation of a factory there on Aug. 1.

The Lexington Auto Co., Connersville, Ind., has let contracts for the erection of an automobile manufacturing plant, 100 x 100 ft., one story.

The Marion Foundry Corporation, Marion, Ind., is constructing a plant to cost about $200,000.

The Schoener Garden Tool Mfg. Co., Des Moines, Iowa, has been incorporated with $350,000 capital stock. The officers are H. Schoener, president; C. D. Bowles, vice-president, and John C. Little, secretary and treasurer.

The Grinnell Washing Machine Co., Grinnell, Iowa, has been incorporated with $250,000 capital stock to manufacture washing machines. The officers include A. C. Lyon, president; Fred J. Whinery, vice-president; J. L. Fellows, secretary and treasurer.

The Campbell Electric Co., manufacturer of ignition specialties, Kansas City, Mo., has opened a new factory at 1408 McGee Street for the manufacture of the Campbell storage battery.

The Ryan Car Co., Hegewisch, Ill., recently acquired 50 acres adjoining its plant, and is having plans drawn for addition.

The Cleveland Metal Products Co., 7609 Platte Avenue, Cleveland, has acquired property, 60 x 458 ft., at Western Avenue and Forty-third Street, Chicago, for about $36,500. It is planning to use the site for the construction of a plant for the manufacture of metal stampings.

The Century Rubber Co., 1346 Rawson Street, Chicago, manufacturer of automobile tires, is planning for the erection of a two-story plant to cost about $80,000. The Osborn Engineering Co., 2848 Prospect Avenue, Cleveland, is the engineer. E. D. Trovier is general manager.

The Common Sense Novelty Co., Sheffield Avenue and Montana Street, Chicago, has awarded a contract to the Scharmer Construction Co., 179 West Washington Street, for the erection of a one-story addition, 100 x 200 ft., at Oakley and Montana streets, to cost about $60,000.

The American Radiator Co., South Michigan Avenue, Chicago, is taking bids for the erection of a new one-story machine shop, 50 x 50 ft., at its works on West Main Street, Springfield, Ohio, to cost about $12,000.

The Florentine Art Metal Works, 1819 North Spaulding Street, Chicago, has been incorporated with a capital stock of $3600. The incorporators are John S. Kandel, William T. Darden and Walter E. Heller.

The Harris Loader Co., Algona, Iowa, has been incorporated with $50,000 capital stock to manufacture manure loaders. The incorporators are J. W. Harris, L. E. Krantz, A. Matson and R. L. Kranz.

Cleveland

CLEVELAND, August, 11.

The machine tool market continues very active. The White Co., Cleveland, which will purchase close to $500,000 worth of machinery for an extension, placed orders the past week for a portion of its requirements amounting to about $50,000. The Studebaker Corporation, Detroit, placed a round lot of multiple spindle drilling and other machines through a local dealer. Announcements have just been made that the F. B. Stearns Co. and the Grant Motor Car Corporation, Cleveland, will build extensions about doubling the capacity of their plants, and other Cleveland automobile companies have additions under way. Orders placed in the automobile field the past week include about 12 machines by the Electric Auto-Lite Co., Toledo, and 15 by the Timken Roller Bearing Co., Canton. A heavy volume of buying is expected by Akron tire manufacturers within the next few weeks. It is understood that the Firestone Tire & Rubber Co. will be in the market shortly for $50,000 worth of machinery, and the B. F. Goodrich Co. is now inquiring for about 10 machines amounting to $25,000, including five radial drills, a boring and a planing machine and some miscellaneous tools. It is expected that the 15 or 20 machines recently inquired for by the Firestone Steel Products Co. will be placed within a few days.

The Ohio Valley Machine Works Co., Huntingston, W. Va., is inquiring for 20 machine tools aggregating about $20,000, and it is understood that the Inland Motor Co., Evansville, Ind., recently organized with a capital stock of $250,000 will purchase $35,000 worth of machinery.

The demand for screw machines in small lots is becoming more active. Several orders were placed by the Indianapolis automobile and allied industries during the week and six by the Bishop & Babcock Co., Cleveland. Manufacturers of plumbers' brass goods are more busy owing to increased activities in the building field and are buying some screw machines.

The Foote-Burte Co., Cleveland, will erect a one and two-story plant with a floor space of 120,000 sq. ft. for the manufacture of machine tools. A site has been acquired on East 131st Street and plans have been prepared by George S. Rider & Co., engineers. The Foote-Burte Co. has outgrown its present quarters and for some time has supplemented this with several branch plants.

The Ohio Blower Co., Cleveland, has placed contracts for two extensions 60 x 110 ft. and 80 x 160 ft., four stories. This paint is used for the manufacture of ventilators, automobile bodies and other sheet metal work.

The Gabriel Mfg. Co., Cleveland, will enlarge its plant by the erection of a two-story and basement addition, 50 x 150 ft.

The Dickey-Grabler Mfg. Co., Noble Court, Cleveland, will build a new one-story machine shop, 60 x 220 ft. at 10,302 Madison Avenue.

The Grant Motor Car Corporation, Cleveland, will enlarge its plant by a two-story addition, 63 x 282 ft.

The American Road Machinery Co., Delphos, Ohio, has had plans prepared for a large addition. Three electric cranes will be installed. It is announced that the company will move its Fort Wayne, Ind., plant to Delphos.

It is announced from Elyria, Ohio, that a plant will be erected in that city by the Willys-Overland Co. for the manufacture of automobile motors and gas engines for home lighting plants. The company has a plant in Elyria and has acquired 106 acres for the new buildings.

The Scientific Mfg. Co., Sandusky, Ohio, contemplates the erection of a plant, 75 x 150 ft., for the manufacture of automobile rims.

The Safety Door Hanger Co., Ashland, Ohio, has been reorganized and incorporated as the Topping Mfg. Co. W. B. Topping who founded the business is president; R. R. Leeds, who has been with the American Hardware Corporation, vice-president; George M. Bear, secretary-treasurer; and R. S. Cornell, formerly with the Stanley Works, general manager. The company will manufacture barn door hangers.

The Mountain Varnish & Color Works, Toledo, Ohio, has commenced the erection of a new plant of brick, steel and concrete that will contain a floor space of 200,000 sq. ft.

The Seneca Wire & Mfg. Co., Fostoria, Ohio, is doubling the capacity of its plant by adding a second story to its main building.

The American Malleable Castings Co., Marion, Ohio, has commenced the erection of an extension 60 x 300 ft.

Detroit

DETROIT, Aug. 11.

The Studebaker Corporation has set a production mark for 1919 of 40,000 cars, one-eighth of which will be exported. The present output is 4200 cars per month. With the completion of new buildings in South Bend, Ind., by next December, it is hoped the production will reach 160,000 cars per annum.

The Lightning Change Rim Co., Berrien Springs, Mich., is completing its plant and will purchase machinery and other equipment to put it in operation by early autumn.

Fire of undetermined origin destroyed the steel pattern house and complete stock of patterns of the Western Machine Tool Works, Holland, Mich., The loss is estimated at approximately $10,000.

Quantity production of the new Moline universal tractor motor has been attained by the Wilson Foundry & Machine Co., Pontiac, Mich., The motor is being made for the Moline Plow Co., of Moline, Ill., and the first lot was turned out three months ago. When assembled it weighs about 700 lbs., and develops 31 hp. at 1600 r.p.m. It is of the four cylinder, valve-in-head type, designed especially for the heavy work of driving a tractor.

The Monroe Binder Board Co., Monroe, Mich., has increased its capital stock from $1,000,000 to $2,000,000. The money is to be used to build a complete new box factory and administration building.

Delay in the delivery of machinery has necessitated the postponement of the opening of the Central Foundry Co.'s plant, Saginaw, Mich., until the middle of September. It is owned by the General Motors Corporation.

The Acme Welded Pipe & Coil Co. has been organized at Jackson, Mich., with A. J. Weatherwax, Detroit, president, and R. C. Weatherwax, Jackson, secretary-treasurer. The plant is at 1838 Cooper Street and the chief products are welded headers for coils and coils for refrigerating plants.

The Ypsilanti Foundry Co., Ypsilanti, Mich., recently organized, has filed papers of incorporation, which show a capitalization of $100,000, with $53,000 subscribed and $30,500 paid in.

Two steel and concrete factory units, 60 x 132 ft. and 70 x 110 ft., will be added to the plant of the Union Steam Pump Co., Battle Creek. About $100,000 will be expended for new machinery and the working force will be increased to about 750 men.

The plant of the Sargent Mfg. Co., Muskegon, Mich., has been purchased by the Brunswick-Balke-Collender Co. for use exclusively in the manufacture of Brunswick phonographs. About 400 men will be employed.

The St. Joseph Iron Works, St. Joseph, Mich., will build an addition, 45 x 140 ft. This is the second extension in two years, and in that period the company has doubled the number of its employees.

The Blackmer Pump Co., Petoskey, Mich., will enlarge its plant by the erection of two buildings, one of which will be used for a foundry.

The Moore Plow & Implement Co., Greenville, Mich., will build a new, one-story foundry, 50 x 80 ft., to cost about $10,000. D. H. Moore is president.

Indianapolis

INDIANAPOLIS, Aug. 11.

The Modern Refrigerator Co., Peru, Ind., which recently increased its capital stock from $25,000 to $100,000 and declared a dividend of 65 per cent, is planning to erect two additional buildings.

The Teetor-Hartley Motor Corporation, Hagerstown, Ind., has bought 10 acres near its factory at Connersville, Ind., and will erect a building 100 x 1500 ft.

The Ansted Engineering Co., accessory to the Lexington Motor Co., Connersville, Ind., will build a factory 100 by 400 ft.

The Three Wheel Drive Tractor Co., Indianapolis, has been incorporated with $100,000 capital stock to manufacture tractors. The directors are Willard Harmon, John A. Miller and Lee Polk.

The Indiana Silo Co., Anderson, Ind., and the Star Tractor Co., Findlay, Ohio, have been consolidated under the name of the Indiana Tractor & Silo Co. W. M. Swain, Pendleton, Ind., is president; George B. Ayres, Anderson, vice-president; E. M. Wilson, Anderson, secretary-treasurer; C. C. McGuire, Anderson, general manager. The capital stock is $1,000,000.

The Pan American Band Instrument Case Co., Elkhart, has been incorporated with $10,000 capital stock, to manu-

facture band instruments. The directors are Carl D. Greenleaf, Guy B. Tuthill and Andrew H. Beardsley.

The laboratories and sales department of the Remy electric division of the General Motors Corporation, which have been at Detroit for five years, will return to Anderson, where a five-story building has been completed.

The Roachdale Electric Light & Power Co., Roachdale, Ind., has increased its capital stock from $50,000 to $100,000.

The Noble Heater Co., Kendallville, Ind., has been incorporated with $400,000 capital stock to manufacture automobile and other metal heaters. The directors are Gilbert A. Bartholomew, Clarence E., James E. and William S. Baker and Louis Goering.

The Visible Automatic Pump Co., Fort Wayne, Ind., has been incorporated with $100,000 capital stock to manufacture pumps. The directors are August E. C. Becker, Augustus Bowser, Guy R. Bracken, D. D. Bash and G. Max Hoffman.

The Gary Foundry & Machine Co., Gary, Ind., has increased its capital stock from $15,000 to $100,000.

The Charlottesville Electric Light, Heat & Power Co., Charlottesville, Ind., has been incorporated with $10,000 capital stock. The directors are Winfield S. Lane, Allen Hill, Sherman Smith, William Elb and Frank Craft.

The plant of the Central Foundry Co., Vincennes, Ind., which has been closed for five years, will be reopened about the middle of September. It manufactured soil pipe and employed 400 men.

The Mid-West Box Co., Anderson, Ind., is in the market for an 18-in. engine lathe.

Cincinnati

CINCINNATI, Aug. 11.

Domestic orders for machine tools are from scattered sources, but automobile manufacturers are probably the heaviest purchasers. An exception may be noted in the demand for boring and turning mills wanted by automobile tire makers for making tire molds. All local jobbing foundries are running on full time.

Machine-tool orders from England and France are not very numerous, but some small orders have been received from Italy and Belgium. Inquiries from South America are also in evidence, but the long time necessary for the exchange of mails is doubtless the cause for the delay in placing orders. The South American field is receiving more attention than formerly by machine-tool builders, especially those making lathes and shaping machines. Heretofore it was generally thought that the comparatively few railroads there were the only buyers worth attention. This idea has been dispelled somewhat by the inquiry received for machine tools for the numerous repair and jobbing shops in different parts of South America.

As a rule well-informed machine-tool builders are not very optimistic as to future business from Europe. They claim late advices show that competition may be expected from Germany much sooner than was anticipated and also that British machine-tool makers will soon be able to supply the local market, as well as compete for business in other countries.

The Dayton Metal Body Co., Dayton, Ohio, has been incorporated with $50,000 capital stock by Wayne F. Lee, Thomas F. Ford and others.

The reliable Spark Plug Co., Dayton, has been incorporated with $10,000 capital stock by E. E. Kumler and others, and will manufacture a newly patented spark plug.

The Cummins Machine Co., Minster, Ohio, has increased its capital stock from $50,000 to $60,000. No immediate additions to its plant are contemplated.

The Tyre Cord & Fabric Co., Columbus, Ohio, has been incorporated with $100,000 capital stock by A. G. Price and others. Nothing has yet been given out as to manufacturing plans.

Work has been commenced on the new plant of the Columbus Tire & Rubber Co., Columbus, Ohio.

The Dayton-Wright Airplane Co., Dayton, is building two additions, 60 x 300 ft., one-story, of steel and concrete.

The Globe Tool & Engineering Co., Dayton, has been incorporated with $20,000 capital stock by Henry Detzel, Alvin E. Shively and others.

The Burkett Mfg. Co., Columbus, Ohio, maker of internal combustion engines, has changed its name to the Adco Mfg. Co., and will add to its line power hay presses.

The Black Diamond Mfg. Co., Cincinnati, paint makers, has had plans prepared for a brick addition to its plant, 50 x 80 ft., three-stories.

The Proctor & Collier Co., Cincinnati, will erect a printing plant on McMillan Street, 110 x 110 ft., three-stories. A number of electric motors will be required.

The Warman Brass & Aluminum Co., Cincinnati, has been incorporated with $25,000 capital stock by Roy Warman and others. The company which was formerly operated as the Warman Aluminum Castings Co. will remove its plant from its present locatioin on Dayton Street to more commodious quarters at Gest Street and the Baltimore & Ohio Railroad.

The Stuebing Truck Co., Cincinnati, is removing its machinery from its Winton Place works to its new plant on Broadway near Eighth Street.

The Reliance Motor Car Co., Cincinnati, has leased a building at Elder and Logan streets that will be equipped for a repair department.

The American Rolling Mill Co., Middletown, Ohio, has commenced work on the foundations for several additions to its East Side works.

The partnership of A. J. Eyen and M. B. Chambers, porprietors of the Chambers Sheet Metal Works, Dayton, Ohio, has been dissolved. The business will be continued under the same name by M. B. Chambers and his son, H. H. Chambers.

The Willard Machine Tool Co., Covington, Ky., has had plans prepared for a brick addition to its plant, 65 x 100 ft., one-story.

Milwaukee

MILWAUKEE, Aug. 11.

Machine tool buying by industries other than those in a strictly automotive classification furnishes an encouraging feature of the situation. The demand is gradually loosening up to take in a wide variety of metal-working shops although no large lots are appearing. The aggregate volume of single tool and small lot orders, however, is satisfactory.

The growth of the gray iron foundry business is exciting much favorable comment. The demand for castings from the general machinery industry is crowding local gray iron shops to the point where extensions have become necessary. Malleable shops likewise are very busy. Steel founders report increasing activity and more electric furnace capacity is being called into play by increasing orders.

The crane business is showing the effects of the broadening aspect of foundry operations.

The Jaeschke Brothers Foundry Co., 3036 Locust Street, Milwaukee, which specializes in machinery castings, will more than double the size and capacity of its gray iron shop by the erection of a brick and steel addition, 90 x 150 ft., and a new core-room, 50 x 100 ft. Most of the equipment has been purchased and includes new core-ovens as well as two 5-ton and one 2-ton cranes, which will be furnished by local crane builders. Paul Jaeschke is president and works manager. The architects are Herbst & Kuenzli.

The A. E. Martin Foundry Co., 705 Park Street, Milwaukee, manufacturer of cylinder castings, pistons and other engine parts, has broken ground for shop extensions which will cost $200,000 or more and increase the capacity approximately 100 per cent. The new buildings will have an aggregate area of 200 x 290 ft., and will be of brick and steel construction. The equipment will include a 10-ton Pawling & Harnischfeger crane and a battery of new core-ovens. Albert E. Martin is president and general manager. John L. Stanage, 144 Oneida Street, is designing and contracting engineer.

The Pawling & Harnischfeger Co., Milwaukee, manufacturer of electric traveling cranes, etc., is building an 80 x 94-ft. extension to its forge shop and has contracted for a miscellaneous list of furnace, hammer and oil tank equipment. The additional facilities are expected to be ready for use by the end of September. Arthur G. Henricks is first vice-president and general manager.

The Gisholt Machine Co., Madison, Wis., will enlarge its turret lathe and general machine tool works and has let a contract to the Worden-Allen Co. for the erection of extensions. Further details are not available at this time.

The Titan Truck Co., 35 Twenty-fifth Street, Milwaukee, manufacturer of heavy duty motor trucks, will build a one-story brick, steel and concrete addition, 150 x 160 ft., to contain a machine shop, assembling floor, service station and shipping room. The general contract has been let to John L. Stanage, consulting engineer, 144 Oneida Street. Machine tool and otther equipment is being purchased, and the addition is expected to be ready Oct. 15 or Nov. 1. Joseph C. Millmann is president and general manager.

The Ogren Motor Car Co., Milwaukee, which recently was incorporated with an authorized capital stock of $500,000, is formed by Hugh W. Ogren of Chicago, designer of a passen-

ger automobile which he has been building in limited quantities for several years. It is proposed to establish permanent works and offices in Milwaukee, but Mr. Ogren is not ready to divulge details.

The Board of Education, Menominee Falls, Wis., has engaged Frank E. Gray, architect, 86 Michigan Street, Milwaukee, to design a combination, high and graded school and manual training institute, 137 x 149 ft., one story and basement, estimated to cost $100,000 complete.

The Oshkosh Motor Truck Co., Oshkosh, Wis., manufacturer of quadruple drive motor trucks and transmission systems, is contemplating the erection of a new machine shop and assembling floor, having outgrown its present quarters. William A. Besserdich is vice-president and chief engineer.

The Brill-Storm Co., Appleton, Wis., has been formed by Edward Brill and William E. Storm and is establishing a general machine shop on Superior Street, to build and repair internal combustion engines and machinery. Tools and an oxy-acetylene welding outfit have been purchased.

The Vollrath Co., Sheboygan, Wis., manufacturer of enameled kitchen utensils and sanitary ware, has plans by Brust & Philipp, architects, 405 Broadway, Milwaukee, for a two and three-story addition, 60 x 150 ft., part of which will be used as offices. The investment is estimated at $60,000.

The Wausau Foundry & Machine Co., Wausau, Wis., recently reorganized following a change of ownership and introduction of additional capital, is preparing to enlarge its plant and will soon be in the market for some equipment.

The Board of Education, Lancaster, Wis., has been authorized to have plans prepared for a new high school, with manual training department, the cost not to exceed $175,000. An architect will be selected at once.

The Board of Education, Antigo, Wis., is purchasing equipment for a second story addition to the manual training institute, the contract for the erection of which was let to C. F. Dallman, local, on Aug. 1.

The Chevrolet Motor Co., Flint, Mich., and New York, has engaged Schnetzky & Son, architects, Brunder Building, Milwaukee, to prepare plans for a branch house, service building and machine shop at Grand Avenue and Twelfth Street, Milwaukee, at an estimated cost of $100,000. Contracts will be awarded about Aug. 20.

The Stewart Tractor Co., 425 East Water Street, Milwaukee, which has selected Waupaca, Wis., as the location of its factory and offices, will take bids after Aug. 18 for the erection of a one-story brick, steel and concrete machine shop and assembling floor, 80 x 133 ft. Alex Stewart is vice-president and chief engineer.

John V. Zweck, Beaver Dam, Wis., has disposed of the sheet metal products department of his hardware business to his brother, Frank L. Zweck, who is establishing a general sheet metal works in a two-story building, 40 x 50 ft., at 120 South Spring Street.

Edward Patt and Gustave Stasewitch, Sheboygan, Wis., who opened a machine repair works at 816 Erie Avenue, April 1, have organized as the Sheboygan Welding & Cutting Co., and will specialize in oxy-acetylene processes.

The Acme Tire & Rubber Co., Milwaukee, has been incorporated with a capital stock of $100,000 to manufacture pneumatic tires, tubes, belting and other mechanical rubber products. The incorporators are Alvin M. Carter, Andrew Loell, Sr., and John M. Carter.

The Interstate Mfg. Co., Milwaukee, which has been incorporated with a capital stock of $15,000, will continue the manufacture of automotive equipment and accessories at 3419 Vliet Street. The owners are Charles B. Johnson, Edward A. Tessner and Robert John Stahl.

St. Louis

ST. LOUIS, Aug. 11.

The Olney Gin Co., Olney, Okla., Palmer Brecheon, president, is reported in the market for about $8,000 worth of cotton gin equipment.

The Churchill Compress Co., Little Rock, Ark., with headquarters at Memphis, Tenn., will rebuild the burned plant of the Gulf Compress Co. at Little Rock. About $80,000 is involved.

The St. Louis Mfg. Co., St. Louis, A. H. Haeseler Co., Wainwright Building, in charge, will construct a power house to cost about $125,000.

The St. Joseph Railway, Light & Heat Co., St. Joseph, Mo., will make improvements to cost about $1,000,000, including one 12,500 kw. turbine, boiler feed-pumps, etc.

The Beggs Power & Ice Co., Beggs, Okla., will install machinery in an electric power plant to cost about $100,000 when completed.

The Ashton Land Co., Clarksdale, Miss., is in the market for electrically driven machinery for a cotton-gin plant.

L. C. Gahbert and others, St. Joseph, Mo., have organized a company to build a malleable iron foundry at Dearborn, to cost about $300,000. J. W. Thomas, Kansas City, is manager.

The Kilkenny Steel Works, Hermann, Mo., will erect a forge shop addition to cost about $60,000.

The Inland Machine Co., 1627 Locust Street, St. Louis, will equip a two-story factory, 80 x 400 ft., for the manufacture of piston rings, to consolidate existing plants.

The City Ice & Storage Co., Kansas City, Mo., M. Dixon, president, will equip a $300,000 ice plant.

The Tulsa Cold Storage Co., Tulsa, Okla., will add to its capacity, expending about $45,000 for equipment.

The National Metal Die Mold Co., St. Louis, O. G. Stark, 1627 Locust Street, and others interested, will establish a metal-working and machine shop at a cost of about $50,000.

The city of St. Louis, Municipal Docks Department, is in the market for cranes and other equipment for the city docks provided for the Government barge line operating out of St. Louis.

The Miller Lightning Rod Co., St. Louis, Edward Miller, general manager, will erect a two-story addition for the manufacture of lightning rods.

The Martin Patent Rake Co., Henryetta, Okla., Roy J. Martin, president and manager, will establish a plant for the manufacture of rakes. About $15,000 worth of machinery is needed.

W. F. Sheehan, Westgate and Plymouth avenues, St. Louis, is in the market for a gasoline engine hoist.

The Central South

LOUISVILLE, Aug. 11.

The Byron Engineering Works, Louisville, Ky., is being organized by J. Stoddard Johnson, Jr., and other local business men with a capital stock of $175,000 to manufacture pole, four-wheel and also semi-trailers. O. E. Byron will be one of the officials and will have charge of production. It is reported that about 50 mechanics will be employed at the start.

The Ross-Meehan Foundries, Chattanooga, Tenn., are planning for the erection of a one-story addition, 130 x 300 ft., to the malleable iron foundry.

The Great American Refining Co., Cedar Grove, La., is planning for the erection of a new refining plant, with initial daily capacity of about 5500 bbl. F. B. Grevemberg, engineer, will be in charge of construction.

The E. M. Rowe Auto Co., Little Rock, Ark., will build a new two-story, reinforced concrete automobile service building and repair works, 40 x 50 ft.

The Herbert-Fisher Brick Co., Memphis, Tenn., recently incorporated with a capital of $250,000, has arranged for the purchase of the plant of the South Memphis Brick Co. which has an average capacity of about 30,000,000 brick per year. This will be increased about three times by the installation of new presses, operating machinery, etc.

Lyons & Archer, Middlesboro, Ky., have acquired a local building, and will establish a plant for the manufacture of automobile rims, spokes and kindred products.

Texas

AUSTIN, Aug. 9.

The Bear Rubber Mills, Ltd., San Antonio, has awarded contract to Gulick, Hoff & Rice, engineers, for the construction of a rubber tire and tube factory to have a daily capacity of 1000 automobile tires and 2000 tubes. Don E. Cameron is president.

The Beaver Refining Co., Henrietta, which has a capital stock of $300,000, has purchased a tract of 17½ acres at that place, upon which it will construct an oil refinery with a daily capacity of 3000 bbl.

The Four States Oil & Refining Co. has closed a contract with the Chamber of Commerce, Quanah, for the construction of an oil refinery with a daily capacity of 2000 bbl. V. H. Williams is vice-president and general manager.

The Jacksonville Compress Co., Jacksonville, which has a capital stock of $100,000, will build a cotton compress. J. W. Wright is a stockholder.

The Ashea-Lang Oil & Refining Co., Vernon, will soon begin the construction of a refinery to have an initial capacity of 500 bbl. per day, to be increased later to 2000 bbl. Dr. W. A. Lang, Long Beach, Cal., is president of the company.

The Sugarland Industries, Sugarland, will equip an electric power plant.

The International Refining Co., Tuczon, Ariz., will construct an oil refinery at Ranger, to cost $250,000. The company has a capital stock of $500,000.

The Elco Pump Co., Italy, Tex., has been incorporated with a capital of $25,000 by L. S. Moseley and associates to manufacture pumping machinery.

The Hibbs Rubber Co., Fort Worth, Tex., recently incorporated with a capital of $100,000, will build a five-story, reinforced-concrete plant for the manufacture of automobile tires, with initial daily capacity of about 500 tires. C. D. Hibbs heads the company.

An electric light and power plant will be constructed by the Platt Gin & Machine, Palestine, Tex., in connection with its proposed cotton gin. Jacob Platt is president.

The International Oil Refining Co., Ranger, Tex., is planning for the erection of a new refinery on a local 10-acre site, estimated to cost about $250,000. O. F. Holmes is manager.

The Kibbe Tractor & Implement Co., Dallas, Tex., has been incorporated with a capital of $50,000 by Louis G. Kibbe and associates, to manufacture motor tractors and other equipment.

The Finucane Boiler Works, Houston, Tex., will build a one-story addition to cost about $25,000, including equipment.

The Chevrolet Motor Co., Fort Worth, Tex., has awarded a contract to Butcher, Sweeney & Friedman, Eighth Street, for the erection of a reinforced-concrete addition, to cost about $500,000, including machinery.

The Pacific Coast

SEATTLE, Aug. 5.

Activity in general machine shops is reported throughout the Northwest. Municipal work planned is providing a good demand for this kind of equipment. Road-working machinery has also been in good call. Harvesting equipment and farm machinery are selling well. Second-hand equipment is practically out of the market.

The demand for machine-tools in the San Francisco section is spasmodic, although inquiry for the smaller machines is fairly continuous. Shipments are again becoming long delayed, and some houses with good stocks on hand are reaping an advantage in their ability to make immediate deliveries. While the shipyards may be said to be out of the market, the Moore Shipbuilding Co., and the Hanlon Shipbuilding Co., Oakland, have recently bought some special machine tools to complete shop equipment.

The Universal Steel Products Co., San Francisco, has been incorporated with a capital stock of $100,000 by B. Norman, L. Norman, R. W. Gillogley, H. Powers and A. S. Keane.

The Moore-Noble Foundry Co., San Francisco, has been incorporated with a capital stock of $12,000, by J. H. Moore, E. B. Noble, G. J. Panario, John Hyland and J. B. Waters.

The California Diesel Engine Mfg. Co., San Francisco, has been incorporated with a capital stock of $50,000 by T. C. Moore, George Klinger, George Appell, John A. Roberts and Eugene J. Mooslin.

The Bailey Mfg. Co., Lodi, Cal., has been incorporated with a capital of $400,000, by Walter R. Woock, Herbert J. Woock, Eric M. Woock and Harry T. Bailey. It will manufacture machinery incidental to well-boring, pumping plants and irrigation products.

The Oscillator Machine Co., Los Angeles, has been incorporated with a capital of $75,000, by F. A. Whitney, C. A. Campbell, W. B. Mabie, E. C. Gates and Will S. Preston.

The J. M. Gauntlett Machine Works, Seattle, has awarded contract for the construction of its one-story machine shop, 29 x 55 ft., on Westlake Avenue. New equipment will be installed.

A. N. Johnson, Hoquiam, Wash., will open an acetylene welding plant at 820 I Street. Machinery for all kinds of welding and electrical work will be installed.

Construction has begun on the plant of the Davis car factory at Fourteenth Avenue South and Kenyon Street, Seattle. The first unit will be 26 x 160 ft., with plans for an ultimate structure, 105 x 160 ft. C. D. Wilson, architect, is supervising the work.

The Spokane Mfg. Co. and the Rhodes Harvester Co., Spokane, have been merged under the name of the Colfax Mfg. Co., with a capital stock of $200,000. A new structure, 50 x 100 ft., will be built for the manufacture of harvesting equipment.

The Walla Walla Tool & Wrench Co., Walla Walla, Wash., will select a factory site and consider building plans in the near future. Dies, steam hammers and other manufacturing equipment to provide an output of at least 500 wrenches, pliers and other small tools per day, will be installed.

G. A. Huffaker, Los Angeles, is having plans prepared for the construction of a one-story machine shop and automobile service building, 70 x 155 ft., at Sherman Way and Erwin Street, Van Nuys, Cal., to cost about $18,000. The machine shop will be equipped for parts manufacture and repair work.

The Acme Welding Works, Los Angeles, has filed notice of organization to operate a plant at 525 West Pico Street. Charles N. Rapfogel, 744 Forty-eighth Street, heads the company.

Collins & Webb, East Third Street, Los Angeles, machinery merchants, have leased a three-story building at 447-49 East Third Street for a new establishment.

The Gagnon Lumber Co.'s plant at Medford, Ore., was completely destroyed by fire recently with a loss of $25,000. J. T. Gagnon, the owner, states that it will be rebuilt immediately.

Canada

TORONTO, Aug. 11.

A better demand for machine tools and supplies was noted the past week. While inquiries received are not for large single orders, individual sales are more numerous. In the majority of cases purchases are for one or two machines, but the volume of such orders gives the feeling of better times ahead, and that these small orders will shortly be supplemented by large lists from companies erecting plants who have not yet made known their requirements. Second-hand machinery is still going well, but the sale of new machines is gradually catching up. Grinding machines and millers are in the greatest demand. A 10 per cent reduction was announced in Canadian drills this week, high speed and carbon.

J. A. Sevigny, Nicolet, Que., is preparing to erect a foundry at a cost of $8,000 to replace the one recently destroyed by fire.

Work is under way on the erection of two buildings to cost $25,000 for the Cockshutt Plow Co., Ltd., Brantford, Ont.

The Brantford Roofing Co., Sydenham Street, Brantford, Ont., is building an addition to its boiler house at a cost of $5,000.

The American Auto Trimming Co., Ltd., Walkerville, Ont., has been incorporated with a capital stock of $500,000 by Benjamin Gotfredson, Frank H. Joyce, Mark H. Coleman, Detroit, Mich.; Walter G. Bartlet, Windsor, Ont., and others, to manufacture automobiles, parts, accessories, etc. The company is preparing to start work on the erection of a plant.

The Canadian Products, Ltd., Walkerville, Ont., has been incorporated with a capital stock of $10,000 by Alexander Leslie, John E. Laughlin, Hugh L. McDowell and others to manufacture auto trucks, tractors, farm machinery and implements, etc.

The Dominion Tractors, Ltd., Windsor, Ont., has been incorporated with a capital stock of $500,000 by George N. Hickey, Elmer E. Theis, both of Detroit, Mich.; Ernest S. Wigle, William Horne, Windsor, and others, to manufacture the Hickey farm tractor, machinery, etc.

The Canadian Steering Wheel Co., Ltd., Toronto, has been incorporated with a capital stock of $150,000 by Mark Devlin, Charles W. Livingston, Room 301, 157 Bay Street; James Parker and others, to manufacture automobile accessories and products of wood and metal, etc.

The Pedlar People, Ltd., Oshawa, Ont., is contemplating selling its site and to buy property farther from the center of the town and erect a new plant for the manufacture of sheet metal products, etc.

W. J. Lay has been awarded the general contract for construction of an electric light and power plant for the Biggar Electric Light & Power Co., Biggar, Sask.

The plant of the Telfor Shingle Mills, Mitchell Island, B. C., was destroyed by fire with a loss of $50,000.

The sawmill owned by the Leclaire Shipbuilding Co., St. Joseph de Sorel, Que., was destroyed by fire with a loss of $60,000. It will be rebuilt at once.

The Liberty Starter Co., Detroit, with plant at 702 West Jefferson Avenue, has taken bids for the erection of a four-story and basement addition, 47 x 120 ft., at Fifth and West Fort streets. The company manufactures starting equipment for automobiles.

Current Metal Prices

On Small Lots, from Merchants' Stocks, New York City

The quotations given below are for small lots, as sold from stores in New York City by merchants carrying stocks.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipment in carload lots from mills, these prices are given for their convenience.

On a number of articles the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general headings of "Iron and Steel Markets" and "Metal Markets."

Iron and Soft Steel Bars and Shapes

	Per lb.
Bars:	
Refined iron, base price	3.37c. to 3.62c.
Burden's H. B. & S. bar iron, base price	6.10c.
Burden's best bar iron, base price	6.30c.
Swedish bars, base price	20.00c.
Soft Steel:	
¾ to 1⅞ in., round and square	3.37c. to 3.62c.
1 to 6 in. x ⅜ to 1 in.	3.37c. to 3.62c.
1 to 6 in. x ¼ to 5/16	3.47c. to 3.72c.
Rods—⅝ and 11/16	3.42c. to 3.67c.
Bands—1½ to 6 x 3/16 to No. 8	4.07c. to 4.57c.
Shapes:	
Beams and channels—3 to 15 in.	3.47c. to 3.72c.
Angles:	
3 in. x ¼ in. and larger	3.47c. to 3.72c.
3 in. x 3/16 in. and ⅛ in.	3.72c. to 3.97c.
1½ to 2½ in. x ⅛ in.	3.52c. to 3.77c.
1½ x 2¾ in. x 3/16 in. and thicker	3.47c. to 3.82c.
1 to 1¼ in. x 3/16 in.	3.52c. to 3.77c.
1 to 1¼ in. x ⅛ in.	3.57c. to 3.82c.
⅞ x ⅞ x ⅛ in.	3.62c. to 3.87c.
¾ x ⅛ in.	3.67c. to 3.92c.
⅝ x ⅛ in.	4.07c. to 4.32c.
½ x 3/32 in.	5.17c. to 5.42c.
Tees:	
1 x ⅛ in.	3.87c. to 4.12c.
1¼ in. x 1¼ x 3/16 in.	3.77c. to 4.02c.
1½ to 2½ x ¼ in.	3.57c. to 3.82c.
1½ to 2½ x 3/16 in.	3.57c. to 3.82c.
3 in. and larger	3.52c. to 3.77c.

Merchant Steel

	Per lb.
Tire, 1½ x ½ in. and larger	3.37c. to 3.62c.
Toe calk, ½ x ⅜ in. and larger	4.25c.
Open-hearth spring steel	6.00c.
Standard cast steel, base price	14.00c.
Extra cast steel	18.00 to 20.00c.
Special cast steel	23.00 to 25.00c.

Tank Plates—Steel

	Per lb.
¼ in. and heavier	3.67c. to 3.92c.

Sheets

Blue Annealed

	Per lb.
No. 8 and 3/16 in.	4.52c.
No. 10	4.57c.
No. 12	4.62c.
No. 14	4.67c.
No. 16	4.77c.

Box Annealed—Black

	Soft Steel C. R., One Pass, per lb.	Wood's Refined, per lb.
Nos. 18 to 20	5.30c.	——
Nos. 22 and 24	5.35c.	6.55c.
No. 26	5.40c.	6.60c.
No. 28	5.50c.	6.75c.
No. 30	6.00c.	——

No. 28, 36 in. wide, 10c. higher.

Wood's Keystone Hammered, 18-24 gage, 9¾c.; 26-28 gage, 10¼c.

Galvanized

	Per lb.
No. 14	5.85c. to 6.10c.
No. 16	6.00c. to 6.25c.
Nos. 18 and 20	6.15c. to 6.40c.
Nos. 22 and 24	6.30c. to 6.55c.
No. 26	6.45c. to 6.70c.
No. 27	6.70c. to 6.95c.
No. 28	6.75c. to 7.00c.
No. 30	7.25c. to 7.50c.

No. 28, 36 in. wide, 20c. higher.

Corrugated Roofing, Galvanized

2½ in. corrugations, 10c. per 100 lb. over flat sheets.

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER	Per lb.
Bright basic	5.25c.
Annealed soft	5.25c.
Galvanized annealed	6.00c.
Coppered basic	6.00c.
Tinned soft bessemer	7.25c.

*Regular extras for lighter gages.

Brass Sheet, Rod, Tube and Wire

BASE PRICE	
High Brass Sheet	32c.
High Brass Wire	32c.
Brass Rod	31c.
Brass Tube	46½c.

Copper Sheets

Sheet copper, hot rolled, 16 oz., 32½c. to 35c. per lb. base.

Cold rolled, 14 oz. and heavier, 1c. per lb. advance over hot rolled.

Tin Plates

Bright Tin		Coke—14x20		
Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20		Primes	Wasters
		80 lb. ..	$7.80	$7.55
		90 lb. ..	7.90	7.65
		100 lb. ..	8.00	7.75
IC ...$11.30	$10.05	IC ..	8.15	7.90
IX ... 13.50	12,00	IX ..	9.15	8.90
IXX ... 15.25	13.75	IXX ..	10.15	9.90
IXXX ... 17.00	15.50	IXXX ..	11.15	10.90
IXXXX ... 18.75	17.25	IXXXX ..	12.15	11.90

Terne Plates

8-lb. Coating 14x20

100 lb.	$8.50
IC	8.65
IX	9.65
Fire door stock	11.75

Tin

Straits pig	74c. to 75c.
Bar	80c. to 85c.
American pig, 99 per cent.	70c. to 72c.

Copper

Lake Ingot	26c.
Electrolytic	24c. to 25c.
Casting	24c. to 25c.

Spelter and Sheet Zinc

Western spelter	9c to 10c
Sheet zinc, No. 9 base, casks	12c.; open 13c.

Lead and Solder*

American pig lead	6½c. to 7c.
Bar lead	7½c. to 8½c.
Solder ½ and ½ guaranteed	45c.
No. 1 solder	40c.
Refined solder	34c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	90c.
Commercial grade, per lb.	50c.

Antimony

Asiatic	10c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.	35c. to 37c.

Old Metals

The market is quiet and prices are unchanged. Dealers' buying prices are nominally as follows:

	Cents Per lb.
Copper, heavy and crucible	19.00
Copper, heavy and wire	18.00
Copper, light and bottoms	15.50
Brass, heavy	12.50
Brass, light	8.50
Heavy machine composition	18.00
No. 1 yellow rod brass turnings	10.00
No. 1 red brass or composition turnings	14.00
Lead, heavy	5.00
Lead, tea	3.75
Zinc	4.50

given,

sold by
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lings of

Per lb.
..5.25c.
..5.25c.
..6.00c.
...6.00c.
...7.25c.

..32c.
...32c.
...31c.
..46½c.

c. per lb.

over hot

20

Wasters
$7.55
7.65
7.75
7.90
8.90
9.90
10.90
11.90

...$8.50
... 8.65
... 9.65
...11.75

c. to 75c.
c. to 85c.
c. to 72c.

26c.
. to 25c.
. to 25c.

c to 10c
en 13c.

to 7c.
to 8½c.
...45c.
...40c.
...34c.

accord-

...90c.
...50c.

...10c.

to 37c.

Deal-
Cents
Per lb.
.19.00
.18.00
.15.50
.12.50
. 8.50
.18.00
.10.00
.14.00
. 5.00
. 3.75
. 4.56